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Kunming-Montreal Global
Biodiversity Framework**

**Study on Access and Benefit-sharing Indicators as they relate to
Target 13 and Goal C of the Kunming-Montreal Global
Biodiversity Framework****

Note by the Secretariat

1. The Executive Secretary circulates herewith, for the information of participants in the twenty-sixth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice, a study on access and benefit-sharing indicators as they relate to Target 13 and Goal C of the Kunming-Montreal Global Biodiversity Framework.
2. The present study was commissioned to the Leibniz Institute German Collection of Microorganisms and Cell Cultures GmbH (DSMZ) by the Secretariat of the Convention on Biological Diversity with generous financial support of the United Kingdom of Great Britain and Northern Ireland.
3. The document supports the consideration of document CBD/SBSTTA/26/2 on the monitoring framework for the Kunming-Montreal Global Biodiversity Framework.

* CBD/SBSTTA/26/1.

** The present document is being issued without formal editing.



**Access and Benefit-sharing Indicators
for the Kunming-Montreal Global
Biodiversity Framework**

Commissioned by the Secretariat of the
Convention on Biological Diversity

Edited by
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Amber H. Scholz



THE BIODIVERSITY PLAN

For Life on Earth

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Contents

| | |
|---|------------|
| Affiliations and Acknowledgments | iii |
| List of Figures | x |
| List of Tables | xi |

I

Study

| | |
|---|-----------|
| Executive summary | 1 |
| 1 ABS under the Kunming-Montreal Global Biodiversity Framework (KMGBF): Goal C & Target 13 | 9 |
| 1.1 International Access and Benefit-Sharing frameworks | 9 |
| 1.2 Objectives and methodology | 14 |
| 2 National experiences to-date with collecting information on benefit-sharing | 16 |
| 2.1 Information flow in ABS national systems under the Nagoya Protocol | 16 |
| 2.2 Survey and interviews on ABS indicators for the KMGBF | 21 |
| 2.2.1 Overview of the survey and interviews | 21 |
| 2.2.2 Key results – collecting information on monetary benefits | 26 |
| 2.2.3 Key results – collecting information on non-monetary benefits | 27 |

| | | |
|------------|--|-----------|
| 2.2.4 | Challenges in the ABS reporting chain | 30 |
| 2.3 | Key findings | 32 |
| 3 | National reporting on bilateral benefit-sharing | 34 |
| 3.1 | Monetary benefits received | 35 |
| 3.2 | Non-monetary benefits | 36 |
| 3.2.1 | Categorizing non-monetary benefits from the Nagoya Protocol Annex | 37 |
| 3.3 | Recommendations for more effective information collection at the national level | 41 |
| 3.3.1 | Establish a national fund as central tool for monetary benefits collection | 41 |
| 3.3.2 | Anticipate confidentiality issues during non-disclosure agreements negotiations | 42 |
| 3.3.3 | Develop a national repository where all information in the reporting process on benefits is stored and information is managed | 43 |
| 3.4 | Key findings | 43 |
| 3.5 | Indicator recommendations for national reporting on benefit-sharing | 44 |
| 4 | Global reporting on bilateral non-monetary benefit-sharing | 48 |
| 4.1 | Developing a new method to measure non-monetary benefits at the global level | 49 |
| 4.1.1 | Step 1: List of IRCCs in the ABS-CH | 50 |
| 4.1.2 | Step 2: List of national ABS permit codes in the ABS-CH | 51 |
| 4.1.3 | Supplemental step: Direct requests of additional national ABS permit codes | 51 |
| 4.1.4 | Step 3: Quality control of the ABS permit-publication database | 52 |
| 4.2 | Results: non-monetary benefits assessed at the global level | 53 |
| 4.2.1 | Number of research and development results arising from ABS instruments | 53 |
| 4.2.2 | Number of joint scientific publications arising from ABS instruments with authors from the provider country, where appropriate | 54 |
| 4.2.3 | Number of scientific publications arising from ABS instruments relevant to conservation, sustainable use, food security, and public health | 55 |
| 4.3 | Recommendations for more effective information collection at the global level | 56 |
| 4.3.1 | Establish the obligation for users to cite IRCCs or ABS permits in scientific publications | 57 |
| 4.3.2 | Standardize citation practices | 57 |

| | | |
|------------|--|-----------|
| 4.3.3 | Develop benefit-sharing related policies | 58 |
| 4.4 | A new standardized global reporting system for users to self-report benefits shared | 59 |
| 4.5 | Key findings | 59 |
| 4.6 | Indicator recommendations for global reporting on bilateral benefit-sharing | 60 |
| 5 | Global reporting on benefit-sharing from the ITPGRFA to the KMGBF | 62 |
| 5.1 | Monetary benefit-sharing within the ITPGRFA | 63 |
| 5.2 | Non-monetary benefit-sharing within the ITPGRFA | 63 |
| 5.2.1 | Overarching non-monetary benefit sharing categories under the ITPGRFA | 64 |
| 5.2.2 | Proposed methodology and identification of the actors subjected to the analysis | 64 |
| 5.2.3 | Parameterization of dimensions, categories, metrics and indicators ... | 66 |
| 5.2.4 | Future steps and conclusions | 68 |
| 5.3 | Key findings | 69 |
| 5.4 | Indicator recommendations for global reporting from the ITPGRFA to the KMGBF | 69 |
| 6 | Global reporting on benefit-sharing from new ABS instruments | 71 |
| 6.1 | Introduction | 71 |
| 6.2 | CBD DSI multilateral mechanism on benefit-sharing | 71 |
| 6.2.1 | Current status of the DSI negotiations concerning benefit-sharing | 72 |
| 6.2.2 | Possible indicators for DSI monetary benefit-sharing | 72 |
| 6.2.3 | Possible indicators for DSI non-monetary benefit sharing | 73 |
| 6.3 | ABS system for marine genetic resources and DSI under the BBNJ Agreement | 75 |
| 6.3.1 | Access under the BBNJ Agreement: The Clearing-House Notification Mechanism | 76 |
| 6.3.2 | Monetary benefit-sharing under the BBNJ Agreement: A New Financial Mechanism and Fund | 77 |
| 6.3.3 | Non-monetary benefit-sharing under the BBNJ Agreement | 77 |
| 6.3.4 | Considerations for BBNJ indicators on ABS from marine genetic resources (MGR) and DSI of MGR | 78 |

| | | |
|----------|--|-----------|
| 6.4 | Key findings | 84 |
| 6.5 | Indicator recommendations to the KMGBF for global reporting from the BBNJ Agreement and CBD DSI multilateral mechanism | 84 |
| 7 | Comprehensive ABS headline indicators for the KMGBF | 86 |
| 7.1 | Pulling the proposed ABS indicators together across the KMGBF . | 86 |
| 7.2 | Outlook | 90 |

II

Backmatter & Appendices

| | |
|---|-----------|
| Bibliography | 93 |
| Treaties and conferences | 93 |
| Books | 96 |
| Articles | 96 |
| Acronyms | 98 |
| Annex 1 - Survey methodology notes | A |
| Annex 1 - Survey design | A |
| Annex 1 - Analysis of data collected | B |
| Annex 2 - Survey | D |
| Section 1 – General Information | E |
| Section 2 – Monetary benefits received from users of genetic resources and/or associated traditional knowledge | F |
| Section 3 – Non-monetary benefits received from users of genetic resources and/or traditional knowledge associated with genetic resources | I |
| Section 4 – Additional information | L |
| Annex 3 - Interview | M |



List of Figures

| | | |
|----|---|----|
| 1 | Survey responses on whether access to genetic resources and/or traditional knowledge associated with genetic resources is regulated | 22 |
| 2 | Providers of GRs or aTK recognized by countries which regulate access . . | 23 |
| 3 | Sharing of key benefits along the ABS value chain | 25 |
| 4 | Main challenges in the ABS reporting chain | 32 |
| 5 | Number of Internationally Recognized Certificate of Compliance (IRCC) issued by countries in the ABS-CH by year through 2023 | 51 |
| 6 | Composition and geographical distribution of the ABS permit database created as part of the ET-NMBS project | 54 |
| 7 | Percentage of articles with authors from the country that provided access to the GR | 55 |
| 8 | Percentage of articles per journal topic. | 56 |
| 9 | Word cloud representation of keywords and Medical Subject Headings (MeSH) descriptors extracted from research articles in the database | 56 |
| 10 | Percentage of articles using different articles sections to cite ABS agreement obtained by the corresponding research | 58 |
| 11 | ITPGRFA approach and dimensions of the empirical methodological framework for structuring and describing non-monetary benefit-sharing practices . | 65 |



List of Tables

| | | |
|----|--|----|
| 1 | Proposed new ABS headline indicators and possible disaggregations | 7 |
| 2 | ABS indicators for the Kunming-Montreal Global Biodiversity Framework adopted at COP-15 | 12 |
| 3 | ABS institutions/right holders' main role and types of information they may hold | 18 |
| 4 | Common challenges in the ABS reporting chain and possible solutions . . . | 30 |
| 5 | List of monetary benefits from the annex of the Nagoya Protocol and some particular characteristics | 35 |
| 6 | List of non-monetary benefits from the annex of the NP divided into five categories | 38 |
| 7 | Database composition based on ABS score for quality control of the ABS permit codes | 53 |
| 8 | Comparison of proposed non-monetary benefit categories of the CBD vs. ITPGRFA | 70 |
| 9 | Possible approaches to indicators based on the information received through notifications to the BBNJ Clearing-House | 80 |
| 10 | The new proposed ABS headline indicators for the KMGBF | 88 |



Study

| | | |
|----------|---|-----------|
| | Executive summary | 1 |
| 1 | ABS under the Kunming-Montreal Global Biodiversity Framework (KMGBF): Goal C & Target 13 | 9 |
| 2 | National experiences to-date with collecting information on benefit-sharing | 16 |
| 3 | National reporting on bilateral benefit-sharing | 34 |
| 4 | Global reporting on bilateral non-monetary benefit-sharing | 48 |
| 5 | Global reporting on benefit-sharing from the ITPGRFA to the KMGBF . | 62 |
| 6 | Global reporting on benefit-sharing from new ABS instruments | 71 |
| 7 | Comprehensive ABS headline indicators for the KMGBF | 86 |



Executive summary

The monitoring framework for the Kunming-Montreal Global Biodiversity Framework (KMGBF) contains “placeholder” indicators for ABS under Goal C and Target 13 that should be updated and finalized by COP16 (CBD/COP/DEC/15/5). The objectives of the study were to: 1) review existing sources of information for the measurement of benefit-sharing at national, regional or global levels; 2) understand how monetary and non-monetary benefits are received and accounted for at the national level; 3) propose and analyze possible measurements concepts for each indicator on the basis of the list provided in the annex to the Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization to the Convention on Biological Diversity (NP); 4) perform a preliminary assessment of the methodology that would be needed for collection of data for selected indicators; and 5) provide relevant information to the AHTEG on indicators for the KMGBF.

Under the CBD and the NP there are no requirements for Parties to monitor and report on the benefits received under ABS agreements. While the principles of the CBD and the measures established by the NP support Parties to keep track of Genetic Resource(s) (GR) and ensure fair and equitable sharing of benefits, those mechanisms were not intended to generate information on the outcomes of ABS – on whether, how, and what monetary or non-monetary benefits are shared. Goal C and Target 13 of the KMGBF represent a shift in focus to measuring the outcomes of ABS, namely monetary and non-monetary benefits shared.

Target 13 and Goal C address benefit-sharing in accordance with internationally agreed ABS instruments, namely the CBD, the NP, as well as the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). In addition, the study addresses new biodiversity-related benefit-sharing mechanisms: the CBD Digital Sequence Information on genetic resources (DSI) multilateral mechanism on benefit-sharing and the

Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine Biological diversity of areas Beyond National Jurisdiction (BBNJ Agreement).

To fulfill study objectives 1 and 2, an online survey of ABS national focal points and competent national authorities, that obtained 77 responses from 69 different countries, was conducted (CBD notification 2023-103). Additionally, representatives from 16 Parties and 16 ABS experts from various fields and sectors were interviewed. The survey and interviews confirmed that few countries that regulate access to GR and/or aTK have systematic information on the non-monetary benefits they receive from their ABS agreements. The number of collaborative scientific research and development results was the most common type of non-monetary benefit for which some information is available. Only Brazil, India and South Africa reported complete information on monetary benefits received, which are generated by a national fund that receives monetary benefits.

The main challenges to collecting information on benefits shared are the number of actors recognized as providers of GR or aTK and beneficiaries; the significant time span between access to GR, utilization and benefit-sharing; and a limited capacity for data management. National or international data structures to collect and manage information generated under ABS agreements, as well as information and training on data collection, will be essential for the effective implementation of the new ABS reporting requirements of the KMGBF. Chapter 2 explains the existing challenges at national level to collect information on monetary benefits shared, and chapter 3 provides some recommendations on actions that countries can take to address those challenges. A better understanding of benefits received would help countries to measure the effectiveness of their ABS systems and mobilize political will and resources for implementing Target 13 and achieving Goal C of the KMGBF.

For monetary benefits received under the CBD/NP bilateral system, national ABS authorities will need to aggregate financial information internally. Some countries have established a mechanism (a specific fund or an account) that centralizes the reception of monetary benefits, which eases the accountability of the transactions and the calculation of the monetary benefits received. This allows easy identification of the payments made by users and avoids the risks associated with payments made to the general budget of a country, where it will be more difficult to track the initial payment and ensure that the funds are used for biodiversity policy objectives. For example, the Brazilian fund can be disaggregated at different levels of monetary benefits received per biome, taxonomic group or sector. In Peru, a fund especially for IPLCs has been established which also can be directly reported and disaggregated to IPLCs as beneficiaries. Countries that collect monetary benefits in a decentralized way, where various beneficiaries directly receive monetary benefits from the user, will need to put in place a centralized tool to collect information. An example can

be the virtual platform to access GR in Costa Rica managed by the National Commission for the Management of Biodiversity (CONAGEBIO) which streamlines the application process and creates an opportunity to manage reporting obligations from users in one place and reduce the administrative burden.

As the overarching global plan for biodiversity, the remit of the KMGBF extends to other ABS instruments. Monetary benefits generated and shared under multilateral mechanisms, such as under the ITPGRFA, the recently established multilateral mechanism on the benefits shared from the use of DSI under the CBD and the mechanism established by the BBNJ Agreement for sharing monetary benefits from the utilization of marine genetic resources and DSI from areas beyond national jurisdiction, could be reported by the respective secretariats of these instruments and aggregated.

Based on the above a new headline indicator is proposed: “**Monetary benefits received in accordance with applicable internationally agreed ABS instruments**”. This information would be collected at the national level for benefits shared bilaterally, and could be made available by the relevant secretariats of other internationally agreed ABS instruments for those benefits shared multilaterally.

A standardized methodology for collecting information on non-monetary benefits at the national level and for aggregating globally and applying to all countries and ABS instruments is a challenging task. During interviews, many country representatives and ABS experts suggested classifying non-monetary benefits into categories and developing indicators accordingly. To this end, the 17 suggested non-monetary benefits in the annex to the NP were grouped into five categories based on the NP First National Report questionnaire, and six types of non-monetary benefits to be reported were proposed, which would be collected at the national or global level:

1. Sharing of information, research results.
 - Number of research and development results arising from ABS instruments (global).
 - Number of scientific publications relevant to conservation, sustainable use, food security, and public health arising from ABS instruments (global).
2. Scientific collaboration and/or joint publications.
 - Number of joint scientific publications arising from ABS instruments with authors from the provider country, where appropriate (global).
3. Capacity-building, capacity development and/or training.
 - Indicator related to capacity-building and development as part of the non-monetary benefits arising from ABS instruments (TBD, see KMGBF-target 20) (national).
4. Access to and transfer of technology.
 - Number of technology transfer events arising from ABS instruments (national).

5. Sustainable development benefits.

- Number of projects contributing to sustainable development arising from ABS instruments (national).

The categories above include three types of non-monetary benefits that could be collected at the national level; and three that could be collected globally, then disaggregated nationally and made available to countries for use in their national report. The latter can be collected based on the methods developed in the project *Examining trends in non-monetary benefit-sharing* (ET-NMBS) led by the Leibniz Institute DSMZ and funded by the German Federal Agency for Nature Conservation (chapter 4). This project has developed a pilot global database of publications in which an ABS permit is directly listed (cited) in the text of the publication. This dataset can be used to identify the three proposed types of non-monetary benefits that would be collected globally. In order for these methods to move from pilot project to full-scale implementation, Parties must fulfill their obligation under the NP to generate IRCCs, and scientists must improve practices for citing IRCCs or ABS permits codes in scientific publications. The Leibniz Institute DSMZ is willing to continue to develop this methodology beyond the project's end in 2025, subject to the availability of funds. This methodology could theoretically also be extended to facilitate global reporting on non-monetary benefit-sharing from the CBD DSI multilateral mechanism, the BBNJ Agreement, and the ITPGRFA at the request of their respective governing bodies and subject to the availability of funds. Such a consolidation would likely ensure an efficient and cost-effective global ABS indicator.

A new headline indicator is proposed for non-monetary benefits: “**Non-monetary benefits arising from applicable internationally agreed ABS instruments**”. The proposed indicator is defined as the average rate of change in the types of non-monetary benefits shared, and aims to track trends in non-monetary benefits, responding to the wording in Goal C that benefits should “substantially increase by 2050”.

The monitoring of non-monetary benefits under multilateral systems will be somewhat more complex. The ITPGRFA Secretariat recently commissioned a study entitled Updated draft Methodology for Measuring Non-monetary Benefit-sharing which presents a similar approach to providing a limited number of categories for non-monetary benefits. The minor divergence observed between the five proposed categories in chapter 3 compared to the six proposed categories in the ITPGRFA study (chapter 5), should be assessed, for consistency, by the ITPGRFA to determine whether similar information can be reported and subsequently aggregated across the KMGBF. Finally, although it is premature to present a similar analysis of the types of non-monetary benefits for the CBD DSI multilateral mechanism and the BBNJ Agreement, the study highlights the opportunity, and indeed urgency, to integrate benefit-sharing indicators from the beginning into these instruments.

As a complementary approach for benefit-sharing reporting, Parties could decide to

develop a global standardized reporting system for non-monetary benefits by users of GR and aTK, to gather information in a centralized manner and subsequently disaggregate by country. This reporting tool would enable users to report on the benefits shared in their work under an ABS instrument. The disaggregated information could be shared with countries for their consideration in their national report. A global standardized repository for non-monetary benefit-sharing reporting would streamline the process of gathering data on non-monetary benefits and enable a linkage between IRCCs, benefit-sharing reports and publications thereby strengthening the interconnectivity of the ABS ecosystem.

The study presents a first analysis and original research on new ABS indicators for the KMGBF. It proposes two new headline indicators to replace the placeholder indicators, six types of non-monetary benefits to be reported, as described below (Table 1), as well as recommendations for Parties to facilitate its implementation (Box 1). This new community-wide focus on ABS outcomes and impact will enable the transition from a focus on policy implementation to an increase in benefits shared accompanied by facilitated access as called for by all Parties through Target 13 and Goal C.

Box 1 — Summary of recommendations for Parties on ABS indicators across all chapters

1. To facilitate aggregate national monetary benefit-sharing reporting, establish a national fund to centrally collect monetary benefits to ease accounting.
2. To overcome challenges from non-disclosure agreements, Parties should consider integrating language in MAT agreements to ensure aggregate reporting is possible.
3. To ensure that direct benefit-sharing with IPLCs is accounted for, internal national mechanisms to compile information are needed.
4. To collect national benefit-sharing outcomes, national data management systems could improve the reporting process and provide systematic overviews of ABS outcomes.
5. To improve information collection at the global level and further optimize the non-monetary benefit-sharing methodology described in chapter 4, coordinated efforts are needed:
 - A ABS NFPs should increase their use of IRCCs in order to robustly link research results with IRCCs codes. Countries may also require user's via MAT to cite IRCCs (or ABS permits codes in case IRCCs are not available) in all the publications related to the authorized utilization of GR or aTK.
 - B Scientists and users should improve their citation of IRCCs and/or ABS permits codes in scientific publications.
6. To collect data on other types of non-monetary benefit-sharing, a new centralized, global reporting tool for users of GR and DSI would enable efficient collection of data and interconnectedness with existing scientific infrastructure and ABS instruments. Disaggregated information could be shared to countries for use in national reports.
7. To enable aggregation across ABS instruments, the CBD DSI multilateral mechanism and the BBNJ Agreement, Parties should anticipate the need to monitor benefit-sharing under the KMGBF and aggregate with other instruments; include indicators during the development of the mechanisms and proactively integrate them into negotiated texts.
8. To support aggregation of data on NMBS across all ABS instruments, holistic, harmonized approaches might offer the potential to establish cross-treaty monitoring tools, which would produce synergies in NMBS management and allow high resource efficiency.

Table 1: *Proposed new ABS headline indicators and possible disaggregations. In the underlined text are the new proposed text for ABS headline indicators for the Kunming-Montreal Global Biodiversity Framework [9]. For goals or targets marked with ^b: a binary indicator was proposed for inclusion for this goal or target and will be further considered by the Ad Hoc Technical Expert Group. Indicators marked with an asterisk (*): an agreed up-to-date methodology does not exist for this indicator. The Ad Hoc Technical. Expert Group will work with partners to guide the development of these indicators.*

| Goal/Target | Headline indicator | Possible disaggregations |
|------------------------|--|---|
| Goal C ^b | C.1 Indicator on monetary benefits received* | For C.1: |
| | <u>C.1 Monetary benefits received in accordance with applicable internationally agreed ABS instruments</u> | By monetary benefits received by indigenous peoples and local communities |
| | C.2 Indicator on non-monetary benefits* | For C.2: |
| | <u>C.2 Non-monetary benefits arising from applicable internationally agreed ABS instruments</u> | By type of non-monetary benefit** |
| Target 13 ^b | C.1 Indicator on monetary benefits received* | For C.1: |
| | <u>C.1 Monetary benefits received in accordance with applicable internationally agreed ABS instruments</u> | By monetary benefits received by indigenous peoples and local communities |
| | C.2 Indicator on non-monetary benefits* | For C.2: |
| | <u>C.2 Non-monetary benefits arising from applicable internationally agreed ABS instruments</u> | By type of non-monetary benefit** |
| | <u>C.2 Non-monetary benefits arising from applicable internationally agreed ABS instruments</u> | By non-monetary benefits received by indigenous peoples and local communities |

**This information will be collected through the national reporting under the Convention where Parties report which types of non-monetary benefits they have received. The reporting should at a minimum include:

1. Number of research and development results arising from ABS instruments (globally collected).

2. Number of joint scientific publications arising from ABS instruments with authors from the provider country, where appropriate (globally collected)
3. Number of scientific publications relevant to conservation, sustainable use, food security, and public health arising from ABS instruments (globally collected).
4. Number of technology transfer events arising from ABS instruments (nationally collected).
5. Number of projects contributing to sustainable development arising from ABS instruments (nationally collected).
6. Indicator related to capacity-building and development as part of the non-monetary benefits arising from ABS instruments (TBD, see target 20 of the KMGBF).



1. ABS under the Kunming-Montreal Global Biodiversity Framework (KMGBF): Goal C & Target 13

Julia Duerschlag

1.1 International Access and Benefit-Sharing frameworks

The 1992 Convention on Biological Diversity (CBD) [1] calls for the fair and equitable sharing of the benefits arising from the utilization of GR as one of its three main objectives and establishes the international principle of ABS. The CBD, in its Article 15, affirms the sovereign rights of States over their GR and that access to GR is subject to national legislation. For those countries that choose to regulate access to GR, the CBD put forth a system based on Prior Informed Consent (PIC) and negotiation of Mutually Agreed Terms (MAT) between the provider and user of the GR. The CBD also places scientific cooperation and research at the heart of the ABS system, indicating that research with and on GR should be conducted with the full participation of, and where possible in, the countries providing the GR (Art. 15.6). Article 8(j) of the CBD also encouraged the equitable sharing of benefits arising from the utilization of the knowledge, innovations and practices of Indigenous Peoples and Local Communities (IPLC). Article 16 on access to and transfer of technology was also deemed essential for the attainment of the objectives of the CBD . The CBD led to the development of a wide number of ABS systems. 196 countries are Parties to the CBD .

In 2002, the 6th Conference Of the Parties (COP) to the CBD adopted the Bonn Guidelines [10] to assist Parties when establishing measures on ABS and when negotiating contracts for access to GRs and benefit-sharing and fully recognized the traditional knowledge associated with genetic resources aTK held by IPLCs as a key component of the ABS system. The Bonn Guidelines introduced some institutional concepts to make the ABS systems more operational and reliable, such as National Focal Point (NFP) and Competent

National Authorities (CNA). It also included an indicative list of possible monetary and non-monetary benefits in an annex.

In 2010, COP 10 adopted the NP [2] on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, which entered into force in 2014. The NP reaffirms the sovereign rights of states over their GR and recognizes that access to aTK held by IPLCs requires PIC or the consent and involvement of the holders of that knowledge and the negotiation of MAT with them (NP, Art. 6-7) [2]. The NP also established an international system to monitor the use of GR and aTK to ensure that they have been accessed legally (NP, Art. 17) [2]. This international compliance system is based on the designation of checkpoints and the exchange of information through the ABS Clearing-House (ABS-CH), where Parties are obliged to communicate their national measures and to publish their national ABS permits which generates Internationally Recognized Certificate of Compliance (IRCC) (NP, Art. 14) as well as information related to the use of a GR when it passes through an established checkpoint (NP, Art. 17) [2]. 141 Parties to the CBD are, as of February 2024, Parties to the NP.

In parallel to CBD developments, the FAO adopted in 2001 the ITPGRFA, which entered into force in 2004 [3]. The ITPGRFA mirrors the objectives of the CBD into the specific scope of the plant genetic resources for food and agriculture and states these objectives will be attained by closely linking the ITPGRFA with the CBD (ITPGRFA, Art. 1) [3]. The main difference with the CBD is that the ITPGRFA, based on the special features of the plant genetic resources for food and agriculture, established a MultiLateral System of access and benefit-sharing under the International Treaty on Plant Genetic Resources for Food and Agriculture (ML) of ABS that facilitates access to the genetic materials of the 64 crops currently included under the system (ITPGRFA, annex 1) for research, breeding and training for food and agriculture, which also includes a benefit-sharing fund [3]. Access to plant genetic resources under the Multilateral (ML) is not subject to any negotiation but to the terms of the Standard Material Transfer Agreement (SMTA) adopted by the Governing Body (GB) of the ITPGRFA (Resolution 2/2006 of 16 June 2006) [11]. The ITPGRFA currently has 156 Parties.

In December 2022, COP 15 adopted the ambitious KMGBF, which sets out 4 goals for 2050 and 23 targets for 2030 [9]. Goal C (Box 2) and Target 13 (Box 3) of the KMGBF are directly relevant to ABS and commit Parties to facilitate access and increase benefit-sharing.

Box 2 — GOAL C – Share Benefits Fairly The monetary and non-monetary benefits from the utilization of genetic resources and digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources, as applicable, are shared fairly and equitably, including, as appropriate with indigenous peoples and local communities, and substantially increased by 2050, while ensuring traditional knowledge associated with genetic resources is appropriately protected, thereby contributing to the conservation and sustainable use of biodiversity, in accordance with internationally agreed access and benefit-sharing instruments.

Box 3 — TARGET 13 – Increase the Sharing of Benefits From Genetic Resources, Digital Sequence Information and Traditional Knowledge Take effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources, and by 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.

At COP 15, Parties also decided to establish a multilateral mechanism for benefit-sharing from the use of DSI, including a global fund [12] although the mechanism is not yet operational. As part of the KMGBF, the COP also adopted a monitoring framework to measure progress towards the Goals and the Targets [7]. Goal C and Target 13 requires Parties to measure, for the first time at the international level, the benefits received from the use of GR, aTK and DSI and measure progress towards achieving a substantial increase in benefits by 2050 (Box 2 and 3). The KMGBF monitoring framework includes two placeholder headline indicators (C1: “monetary benefits received”; and C2: “non-monetary benefits”) that are further supported by component and complementary indicators [7] (Table 2).

Table 2: *ABS indicators for the Kunming-Montreal Global Biodiversity Framework adopted at COP-15 [7]*

| Goal/ Target¹ | Headline indicator² | Component indicator | Complementary indicator |
|-------------------------------------|---|---|--|
| Goal C ^b | C.1 Indicator on monetary benefits received* C.2 Indicator on non-monetary benefits* | NA | <p>Number of users that have provided information relevant to the utilization of genetic resources to designated checkpoints</p> <p>Total number of internationally recognized certificate of compliance (IRCC) published in the ABS Clearing-House</p> <p>Number of checkpoint communiqués published in the ABS Clearing-House</p> <p>Number of internationally recognized certificates of compliance for non-commercial purposes</p> <p>Integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental Economic Accounting</p> |
| Target 13 ^b | C.1 Indicator on monetary benefits received* C.2 Indicator on non-monetary benefits* | Number of permits or their equivalents for genetic resources (including those related to traditional knowledge) by type of permit | <p>Total number of transfers of crop material from the Multilateral System of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) received in a country</p> <p>Total number of permits, or their equivalent, granted for access to genetic resources</p> <p>Total number of internationally recognized certificates of compliance published in the ABS Clearing-House</p> |

Table 2, continuation from the previous page

| Goal/ Target | Headline indicator | Component indicator | Complementary indicator |
|-----------------|--------------------|---------------------|---|
| | | | <p>Number of countries that require prior informed consent that have published legislative, administrative or policy measures on access and benefit-sharing in the ABS Clearing-House</p> <p>Number of countries that require prior informed consent that have published information on access and benefit-sharing procedures in the ABS Clearing-House</p> <p>Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits</p> <p>Estimated percentage of monetary and non-monetary benefits directed towards conservation and sustainable use of biodiversity</p> |

¹For goals or targets marked with^b: a binary indicator was proposed for inclusion for this goal or target and will be further considered by the Ad Hoc Technical Expert Group.

²Indicators marked with an asterisk (*): an agreed up-to-date methodology does not exist for this indicator. The Ad Hoc Technical. Expert Group will work with partners to guide the development of these indicators.

Despite the ambition of the KMGBF, there is no current global approach and thus no indicator available to quantify monetary or non-monetary benefits from ABS agreements. Information on ABS outcomes at the global, regional and national levels is very limited. This crucial gap between vision and reality needs to be filled by Parties. Methodologies to measure monetary benefits received and non-monetary benefits need to be developed in order to assess if and how much benefit-sharing is taking place and what the trend is in terms of increase or decrease. This in turn can provide indication as to trends in access to genetic resources and the associated traditional knowledge.

To address this gap in ABS indicators, as well as other gaps across the monitoring framework of the KMGBF, an AHTEG on Indicators was established to guide the process of developing the methodology for the missing (i.e. placeholder) headline indicators in the KMGBF monitoring framework and their assessment.

In 2023, the Expert Group proposed binary indicators to complement headline indicators, particularly where the headline indicators are under-developed. In the case of Target 13, a binary indicator on the “Number of countries that have taken effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits” was suggested by the Expert Group and considered by the CBD’s Subsidiary Body on Scientific, Technical and Technological Advice in October 2023. However, a binary indicator to measure the second part of Target 13 on facilitating appropriate access to GR is still missing. In general, the proposed global indicator based on binary responses in national reports [13] for Target 13 would only serve to measure policy implementation and not access facilitated and benefits shared. **Indeed, the majority of ABS indicators (Table 2) measure the necessary steps that need to be taken to achieve benefit-sharing but will not inform Parties whether and how benefit-sharing is working.**

At a fundamental level, benefit-sharing outcomes under the CBD were *prima facie not designed* to be measured. Therefore, post-KMGBF, Parties will need to start at ground zero. They will need to collectively decide how to do this; whether and how to measure benefits at the national, regional, or international level; and whether there are sufficient existing resources to enable the desired outcomes.

1.2 Objectives and methodology

This study is a first step in conceptualizing and gathering ideas for ABS indicators and possible methodologies. Its main focus is on the CBD, but given that Target 13 and Goal C address benefit-sharing in accordance with internationally agreed ABS instruments, it also explores other ABS instruments (mainly the ITPGRFA, the incoming CBD DSI multilateral mechanism and the new BBNJ agreement following the call made by the

United Nations General Assembly to the other multilateral environmental agreements and to other relevant international organizations and processes to actively participate in the implementation of the KMGBF [14]. The study does not prejudge that other future ABS-related instruments could provide information on benefit-sharing, such as the international instrument on pandemic prevention, preparedness and response that is under negotiation at the World Health Organization (WHO) [15], or the international legal instrument relating to intellectual property, genetic resources and traditional knowledge associated with genetic resources that is under negotiation at the World Intellectual Property Organization (WIPO). However, at this stage, without, in both cases, a final adopted text that could clarify the initial scope and possible ABS implications of those instruments, the study has not incorporated them into its analysis.

The study aims to understand how monetary and non-monetary benefits are received and accounted for at the national level, assess opportunities to compile, analyze and report on ABS outcomes at a global level, and learn lessons from other internationally agreed ABS instruments. Throughout, the study offers ideas for new ABS indicators that will move beyond measuring legal implementation and towards the spirit of measuring benefit-sharing outcomes expressed onwards to Goal C by 2050 (Box 2) and for Target 13 by 2030 (Box 3).

To collect information from Parties to the CBD on the implementation of national ABS frameworks, in particular on data collection and data availability for monetary and non-monetary benefits received from granting access to GR and/or aTK resources, a survey on ABS indicators for the KMGBF [16] was conducted. To better understand and contextualize the survey, interviews were also conducted with Parties representatives and ABS experts from various fields and sectors. The survey methodology and questions are provided in Annexes I & II. For the interviews, methodology and interviewees can be found in Annex III and in the acknowledgment sections above respectively. The chapters ahead will analyze and summarize responses to the survey and provide further context from in-depth interviews conducted.



2. National experiences to-date with collecting information on benefit-sharing

Julie Roy, Julia Duerschlag, Hartmut Meyer, Suhel al-Janabi & Amber H. Scholz

This chapter presents an overview of the current state of ABS data collection and data management at the national level under the CBD and the NP, including information collected from Parties to the CBD through an online survey distributed in September 2023 [16] as well as key findings from in-depth interviews conducted from November to December 2023.

2.1 Information flow in ABS national systems under the Nagoya Protocol

At the national level, countries implementing ABS generally have designated a NFP and at least one CNA¹. A user would begin the ABS process by accessing information on the NFP and CNA, as well as on the ABS measures and procedures of a certain country, from the ABS-CH. They would establish contact with the CNA and request access to national GR. For the purposes of this study, we will refer to the permission obtained from the CNA as an “ABS permit”. This is frequently an administrative document recognizing the conclusion of an ABS contract (based on PIC and MAT) between the user(s) and the provider(s). Parties

¹Countries may establish several competent national authorities. Further, the same entity may be designated to fulfill the functions of both national focal point and competent national authority. See Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (adopted on 29 October 2010, entered into force on 12 October 2014) 2008 UNTS 3, Art. 13 [2]. National focal points and CNAs are also defined in the 2002 Bonn Guidelines on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization [10].

2.1 Information flow in ABS national systems under the Nagoya Protocol 17

to the NP are obliged (Art. 14.2, NP [2]) to submit some non-confidential information or metadata on the ABS permits granted at the national level to the ABS-CH, which, in turn, generates an IRCC², which becomes publicly available on the ABS-CH³. A copy of the IRCC is sent to the provider country (NFP, CNA or other relevant authority granting the access) and to the user (person or entity to whom PIC has been granted, if not confidential).

Under the NP, Parties must establish effective checkpoints⁴, at places along the value chain, and compliance measures to ensure that GR used under their jurisdiction have been obtained in compliance with existing ABS requirements. Once a checkpoint collects or receives information about the utilization of a GR, that information is communicated to the ABS-CH through a CheckPoint Communiqué (CPC). The ABS-CH sends a copy of the CPC to the user country (the CNA or other authority) and the provider country (NFP and CNA), as well as with the person or entity to which PIC was granted (user), if the contact information is included⁵. This information is meant to help the provider to monitor the utilization of its GR once it has left the country and follow up the compliance with the MAT and conditions agreed with the user, which can be done in cooperation with the authorities of the user country when more information is needed. Table 3⁶ summarizes the main roles of key ABS institutions/right holders as well as the types of information they may hold [2, 16].

²The IRCC contains the following minimum information when it is not confidential: issuing authority, date of issuance, the provider, unique identifier of the certificate, the person or entity to whom prior informed consent was granted, subject-matter or GR covered by the certificate, confirmation that mutually agreed terms were established, confirmation that prior informed consent was obtained, and whether the use is commercial or non-commercial.

³See Access and Benefit-Sharing Clearing-House, available online at: <https://absch.cbd.int/en/search?schema=absPermit>

⁴Countries may have several checkpoints, which should be established at points relevant to the utilization of genetic resources or to the collection of relevant information, e.g. at a given stage of research, development, innovation, pre-commercialization or commercialization. See NP, Art. 17.1 [2]

⁵<https://absch.cbd.int/en/kb/tags/monitoring/The-flow-of-information-through-the-ABS-Clearing-House-to-support-monitoring-the-utilization-of-genetic-resources/5be4876871ac250001aad45>

⁶Table 3 was compiled by the authors by consulting the text of the NP [2], the IUCN's An Explanatory Guide to the Nagoya Protocol on Access and Benefit-sharing (2012) [24], relevant COP-MOP decisions, and information published to the ABS Clearing-House.

2.1 Information flow in ABS national systems under the Nagoya Protocol 18

Table 3: *ABS institutions/right holders' main role and types of information they may hold*

| ABS institutions/ right holders | Main role | Types of information |
|--|---|---|
| ABS National Focal Point | <ul style="list-style-type: none"> • Liaise with the CBD Secretariat and communicate information on ABS on behalf of the country • Provide information to potential users • Ensure national information is published to the ABS-CH, including national reports | <ul style="list-style-type: none"> • Information on national ABS measures and procedures • Information on CNAs, IPLC s and relevant stakeholders as appropriate |
| Competent National Authority(ies) | <ul style="list-style-type: none"> • Grant access to GR and/or aTK, and issue written evidence (permits or their equivalent) • Grant PIC and enter into MAT⁷, as applicable⁸ or provide information on how to obtain PIC/MAT • Process access requests and approve permits | <ul style="list-style-type: none"> • Information on PIC/MAT procedures • Granted permits • Information on benefits contained in MAT they have entered into • Information from applications and applicants |

⁷Mutually agreed terms should be set out in writing and may include, *inter alia*, a dispute settlement clause, terms on benefit-sharing, terms on subsequent third-party use, and/or terms on changes of intent. See NP, Art. 6.3 (g) [2].

⁸This role may also be filled by IPLCs for the GR over which they have established rights and/or for the aTK which they hold. Other stakeholders may also be involved in PIC and MAT.

2.1 Information flow in ABS national systems under the Nagoya Protocol 19

Table 3, continuation from the previous page

| ABS institutions/ right holders | Main role | Types of information |
|---|---|--|
| IPLC s and others recognized as providers within the country | <ul style="list-style-type: none"> • Grant Free, Prior, and Informed Consent (FPIC) • Negotiate benefit-sharing through MAT • Receive benefits from the use of GR and /or aTK, as appropriate | <ul style="list-style-type: none"> • Information on benefits contained in MAT they have entered into • Information on benefits received by them |
| Checkpoint(s) | <ul style="list-style-type: none"> • Monitoring and enhancing transparency on the utilization of genetic resources, by collecting or receiving information from users and providing it to relevant national authorities and the ABS-CH through the checkpoint communique | <ul style="list-style-type: none"> • Source of the GR • Utilization of the GR • Whether PIC was obtained and MAT established for the GR |

2.1 Information flow in ABS national systems under the Nagoya Protocol 20

Table 3, continuation from the previous page

| ABS institutions/ right holders | Main role | Types of information |
|--|---|---|
| Access and Benefit-Sharing Clearing-House | <ul style="list-style-type: none"> • Platform for exchange of information on ABS • Generate IRCCs from non-confidential information on the ABS national permits or their equivalent when provided by the NFP or CNA • Communicate information shared by a checkpoint to relevant national authorities and to the Party providing PIC when provided by the NFP or CNA | <ul style="list-style-type: none"> • Information on national ABS measures/procedures • Information on NFPs and CNAs • Information on permits or their equivalent constituted as IRCCs, without prejudice to the protection of confidential information • Number of national records published, including IRCCs⁹ • Information collected at checkpoints, and shared as CPCs • Other information required by the NP or by COP-MOP decisions¹⁰ |

The KMGBF requires a major shift in practices for data collection and management for the CBD constituency. For ABS, it implies the collection, compilation and reporting of information on monetary and non-monetary benefits received by all countries implementing ABS frameworks. Although the terms of benefit-sharing are likely to be defined in the MAT, information on non-monetary benefits or monetary benefits received by the provider(s) cannot at present be readily compiled or made available for global reporting.

⁹See ABS Clearing-House, “Country profiles”, available online at: <https://absch.cbd.int/countries>

¹⁰This may include specific measures for ABS of aTK (Art. 12.2), capacity-building and development initiatives (Art. 22.6.), as well as national reports under the NP [2] (in accordance with COP-MOP decisions NP-1/3 [17], NP-3/4 [18])

2.2 Survey and interviews on ABS indicators for the KMGBF

2.2.1 Overview of the survey and interviews

The survey received a total of 77 individual responses from 69 different countries¹¹. Most respondents were the designated ABS NFP (58%) followed by CNA for ABS (19%), the main CBD national focal point (6%)¹², or other roles in government (16%). In terms of geographic representation, responses were received from across the five CBD regional groups: Africa (29%), Asia and the Pacific (22%), Central and Eastern Europe (7%), Latin America and the Caribbean (19%), and Western Europe and Others Group (23%). Most countries that responded to the survey were Parties to the NP (87%)¹³. For the in-depth interviews, the 16 participating countries were represented by either the CBD or ABS NFP (or both); whereas the 16 “ABS experts” interviewed were from non-governmental organizations, international organizations, research institutes and the private sector.

Forty-nine respondents stated that their country regulates access to GRs and/or to aTK (35 countries regulate access to both¹⁴, 13 only regulate access to GRs¹⁵, and one country only regulates access to aTK¹⁶) while 19 of the 69 participating countries do not regulate access (Figure 1).

¹¹Argentina, Australia, Austria, Belarus, Belgium, Benin, Botswana, Brazil, Brunei Darussalam, Burundi, Cambodia, Cameroon, Canada, Central African Republic, Chile, Colombia, Congo, Cook Islands, Costa Rica, Côte d’Ivoire, Cuba, Czechia, Denmark, Ecuador, El Salvador, Equatorial Guinea, Estonia, Ethiopia, European Union, Finland, France, Gambia, Germany, Ghana, India, Indonesia, Jamaica, Japan, Kiribati, Lao People’s Democratic Republic, Lesotho, Malaysia, Mexico, Mongolia, Montenegro, Morocco, Myanmar, Netherlands (Kingdom of the), Nigeria, North Macedonia, Pakistan, Panama, Peru, Portugal, Senegal, Serbia, Seychelles, Sierra Leone, South Africa, Spain, Sweden, Switzerland, Togo, Tuvalu, United Kingdom, Uruguay, Vanuatu, Vietnam, Zambia.

¹²Several respondents held two or all roles.

¹³Most respondents, or 68%, accessed the English language version of the survey, while 21% and 12% responded in Spanish or French, respectively.

¹⁴Argentina, Benin, Botswana, Brazil, Brunei Darussalam, Burundi, Cambodia, Cameroon, Colombia, Congo, Cook Islands, Costa Rica, Côte d’Ivoire, Cuba, Ecuador, Ethiopia, France, India, Indonesia, Kiribati, Lao People’s Democratic Republic, Lesotho, Malaysia, Mexico, Mongolia, Morocco, Pakistan, Panama, Peru, Seychelles, South Africa, Togo, Tuvalu, Vanuatu, Zambia.

¹⁵Australia, Belarus, Belgium, El Salvador, Equatorial Guinea, Jamaica, Nigeria, Portugal, Senegal, Spain, Switzerland, Uruguay, Vietnam.

¹⁶Finland.

Does your country regulate access to its genetic resources (GR) and/or traditional knowledge associated with genetic resources (aTK)?

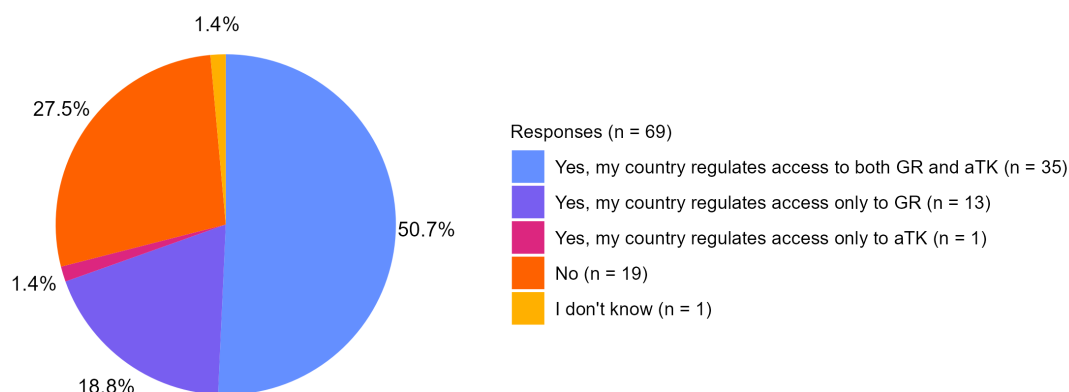


Figure 1: Survey responses on whether access to genetic resources and/or traditional knowledge associated with genetic resources is regulated.

Among countries which regulate access, more than half (64%)¹⁷ had concluded agreements with users for access to GR or to aTK in the last 10 years. The most common or important benefits according to the survey are summarized in Box 4.

Based on survey responses, most countries which regulate access to GRs (63%)¹⁸, recognize more than one entity as a provider, among them national and local governments, IPLC s, academic institutions, and private landowners (Figure 2). Therefore, information on benefits negotiated in MAT and subsequently on benefits received may be dispersed. The most common provider is the national government, followed by IPLC s, and regional or local governments. For aTK, most countries that regulate access recognize IPLC s as providers in some capacity (86%)¹⁹, including 18 countries which recognize them as the sole provider²⁰. In 14 countries²¹, more than one entity is recognized as a provider of aTK. The recognized providers of GR and aTK are generally different. **These results suggest that most countries, in particular those which regulate both access to GR and aTK, would need to coordinate with several entities or groups to collect relevant information for ABS indicators under the KMGBF.**

¹⁷Argentina, Belarus, Benin, Brazil, Cambodia, Cameroon, Colombia, Cook Islands, Costa Rica, Côte d'Ivoire, Cuba, Equatorial Guinea, Ethiopia, France, India, Indonesia, Jamaica, Lao People's Democratic Republic, Malaysia, Mexico, Mongolia, Panama, Peru, Portugal, Senegal, Seychelles, South Africa, Spain, Togo, Vanuatu, Vietnam, Zambia.

¹⁸Argentina, Australia, Belarus, Belgium, Benin, Burundi, Cambodia, Congo, Cook Islands, Costa Rica, Côte d'Ivoire, El Salvador, France, India, Indonesia, Kiribati, Lesotho, Malaysia, Mexico, Pakistan, Panama, Portugal, Senegal, South Africa, Spain, Togo, Tuvalu, Vanuatu, Vietnam, Zambia.

¹⁹Argentina, Benin, Botswana, Brazil, Burundi, Cambodia, Cameroon, Colombia, Congo, Cook Islands, Costa Rica, Côte d'Ivoire, Cuba, Ecuador, Ethiopia, Finland, India, Indonesia, Kiribati, Lesotho, Malaysia, Mexico, Morocco, Panama, Peru, Seychelles, South Africa, Togo, Tuvalu, Vanuatu, Zambia.

²⁰Argentina, Benin, Botswana, Brazil, Cameroon, Colombia, Congo, Costa Rica, Côte d'Ivoire, Cuba, Ecuador, Finland, Indonesia, Mexico, Panama, Peru, Seychelles, South Africa.

²¹Burundi, Cambodia, Cook Islands, Ethiopia, France, India, Kiribati, Lesotho, Malaysia, Morocco, Togo, Tuvalu, Vanuatu, Zambia.

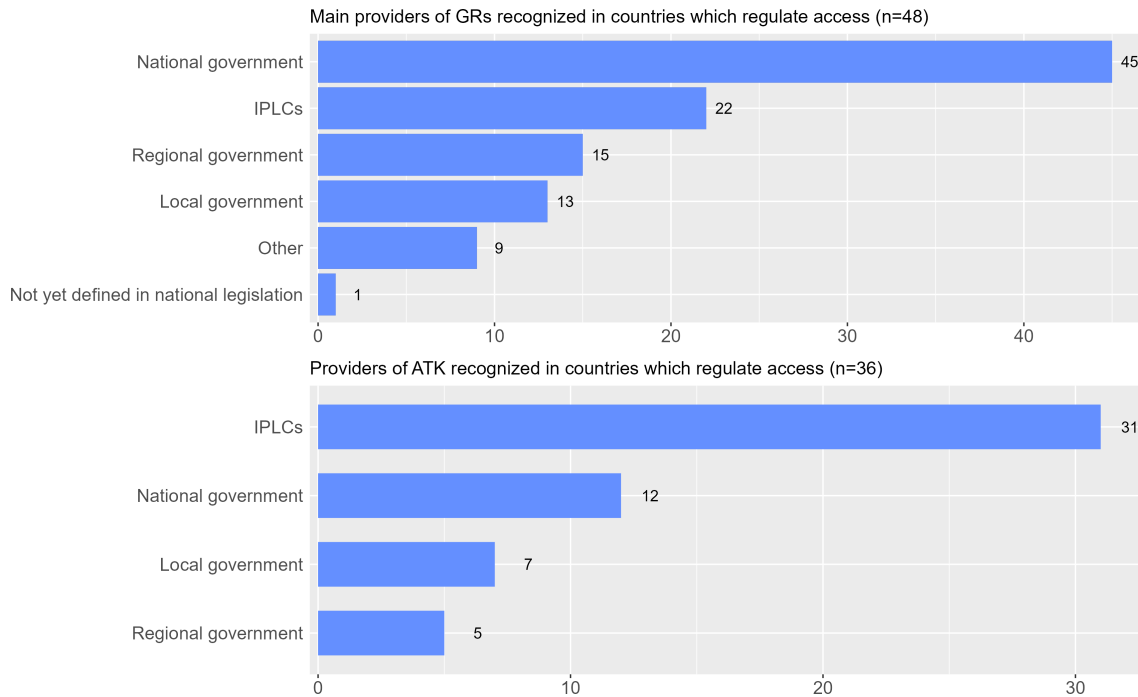


Figure 2: Providers of GRs or aTK recognized by countries which regulate access. Others recognized as providers of GRs included private landowners, national parks systems, research centers and private sector. Responses from 48 countries which regulate access to GR and 36 countries which regulate answers to aTK, multiple answers possible.

The results of the survey were corroborated by the in-depth interviews where the involvement of multiple entities in the ABS process was clearly recognized as a challenge for collecting and compiling comprehensive information on ABS permits, let alone benefits received.

Depending on the country's legislation, different ministries, institutions, provinces, states or regions may have the right to grant access (grant PIC and negotiate MAT). MAT may also be negotiated with private landowners as providers²². In these cases, multiple authorities and providers granting ABS permits and negotiating MAT can make it more challenging not only to access GR, but also to coordinate and monitor all available reports and information on benefits received at the national level. Similarly, a diversity of beneficiaries may complicate the gathering of information on benefits received. Benefits may be shared directly with providing communities or other stakeholders, and information about the benefit transaction may not be circulated and gathered back to the access granting authority in a timely manner.

Another of the main challenges to collect information related to the benefits received is the significant time lag between the granting of access and the use of a GR and the benefits received, mainly because of the personnel turnover, limited capacity to follow up

²²For instance, in the survey, Costa Rica and South Africa indicated that individuals such as private landowners were potential providers of genetic resources, and Belarus, El Salvador and Spain noted that private entities/businesses could be providers of genetic resources according to their national legislation.

on benefit-sharing agreements and for data management. In this regard, Figure 3 shows the key potential benefits that could be shared along the value chain from the access to the GR to the final commercialization of a product, with a time interval of up to 20 years. Benefits that are independent of the utilization of the GR, such as “Up-front payments” and “access fee/fees per sample collected or otherwise required” (NP, Annex [2]), do not directly depend on the utilization of a GR. Also, some non-monetary benefits such as “training” and “provision of human and material resources to strengthen the capacity for the administration and enforcement of access regulations” (NP, Annex [2]) could be shared with the providing Party prior to the successful utilization of a GR. Other benefits described in the annex of the NP [2] are based on a successful commercialization, such as “payment of royalties” or “License fee in case of commercialization” or generating of research results e.g., non-monetary benefits such as “sharing of research and development results” or “access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies” (NP, Annex [2]). These examples illustrate the uncertainty of when benefit-sharing is expected and benefits are received. Thus, long-term planning is important for monitoring benefit-sharing in order to verify that the initial terms contained in the MAT have been met. However, the capacity to establish a functional framework, a system to manage data, and to follow-up on MAT and benefits, is often limited.

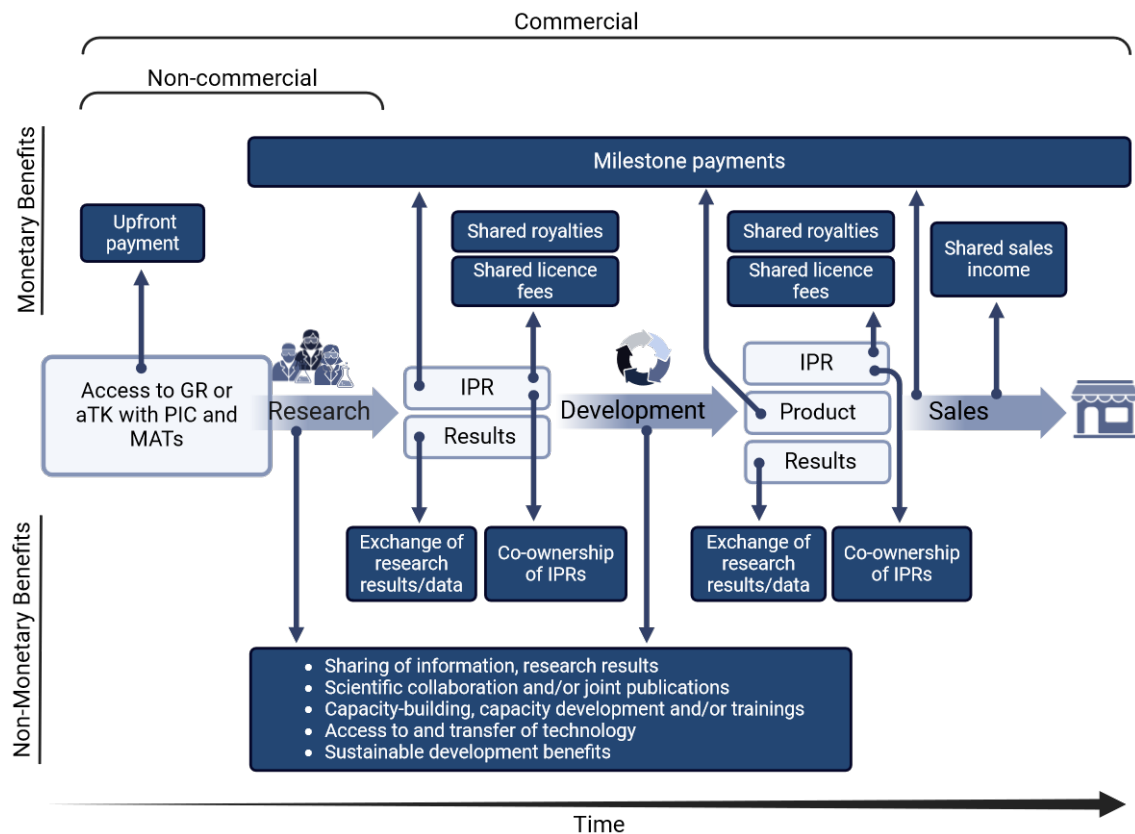


Figure 3: *Sharing of key benefits along the ABS value chain. IPR: Intellectual Property Rights. Created with BioRender.com.*

The survey also explored whether countries collect or encounter information on monetary or non-monetary benefits shared with other countries, when implementing compliance measures. Some countries mentioned carrying out compliance checks or other ABS compliance review processes during which certain types of information are requested from users (e.g. IRCCs or its equivalent), though some countries noted that this review does not verify if benefits have been shared or disbursed by the user. As mentioned before, these kinds of mechanisms were not intended to generate information specific to ABS outcomes, i.e., monetary or non-monetary benefits shared.

Further, the survey also provided the opportunity for respondents to share their comments, concerns, or needs for capacity-building in relation to ABS indicators. As a result, 17 respondents from 16 countries²³ indicated that their country would benefit from capacity-building, capacity development or training on how to compile and report on ABS indicators for the KMGBF. Several respondents also indicated that there is a need for capacity-building and development²⁴ and/or for additional financial resources²⁵ to support

²³Botswana, Burundi, Central African Republic, Colombia, Congo, Côte d'Ivoire, Ecuador, El Salvador, Gambia, Ghana, Malaysia, Myanmar, Pakistan, Peru, Senegal, and Sierra Leone.

²⁴Benin, Cooks Islands, El Salvador, Equatorial Guinea, India, Kiribati, Lesotho, Pakistan, Seychelles, Sierra Leone and Zambia.

²⁵Belarus, Central African Republic, Equatorial Guinea, and Sierra Leone.

national ABS implementation in general.

2.2.2 Key results – collecting information on monetary benefits

²⁶Regarding information on monetary benefits received from ABS agreements, only 12 countries (24%)²⁷ indicated that either aggregate or partial information was available on monetary benefits received. When asked how information on monetary benefits was received and handled in the country, receiving information as digital documents (10%) or printed documents (12%) were the most common responses. Brazil was the only country that indicated that it compiles and manages information on monetary benefits through an online platform or database.

When asked about possible disaggregation of this data, six countries (12%)²⁸ indicated that the information was available by calendar year. Three of these countries (Brazil, India and South Africa) could provide the amount of monetary benefits received to date in a local currency, while two countries (Costa Rica and Vietnam) indicated that available data could not be shared due to the confidentiality of agreements negotiated with users²⁹. During the interviews, several countries also indicated that confidentiality issues impede them from reporting on monetary benefits received. However, some ABS experts from the private sector also noted during the interviews that aggregate reporting is a common and standard practice applied in different policy areas and that countries could anticipate confidentiality issues at early stages during negotiations and agree on terms that allow them to report on aggregated monetary benefits received. More details on this topic are included in chapter 3.

Further, five countries³⁰ indicated that their national data on monetary benefits could be disaggregated by beneficiary type, including Brazil and Vanuatu that could provide the data for several types of beneficiary, e.g. received by academic institutions, by a national, regional or local government, and/or by IPLC s. Brazil indicated that their national data can also be disaggregated by biome, taxonomic group, whether used for food and agriculture, geographical location, and whether the sample was obtained *in situ*, *ex situ*, *in silico* or through intermediary product. Brazil also indicated that they had at least one national indicator in place relating to monetary benefits arising from ABS agreements.

Also of relevance to the handling of information relating to monetary benefits, the survey indicates that at least 12 of the countries regulating access (24%)³¹ have established

²⁶All percentages in this section and the following are provided considering only countries which regulate access (49 of total country respondents).

²⁷Argentina, Brazil, Cameroon, Colombia, Costa Rica, Ethiopia, India, Nigeria, Panama, South Africa, Vanuatu, and Vietnam.

²⁸Brazil, Costa Rica, India, South Africa, Vanuatu, and Vietnam.

²⁹The authors note that due to a technical error with the survey software, Cameroon was not able to respond to the question on whether available data on monetary benefits could be readily shared.

³⁰Brazil, Costa Rica, India, Vanuatu and Vietnam.

³¹Belgium, Botswana, Brazil, Cambodia, Cameroun, Colombia, Ethiopia, India, Malaysia, Peru, South

a fund or another financial mechanism to receive and manage monetary benefits. These funds or mechanisms may or may not be managed by the same national authority or department responsible for ABS implementation. In Cameroon and Peru, separate accounts or funds exist to receive monetary benefits directed to IPLCs.

Further, among the 12 countries with funds or mechanisms established, only Belgium and Botswana had not yet entered into ABS agreements. When considering other survey responses, six countries³² responded that they have both partial or aggregate information on monetary benefits and a fund or other financial mechanism established to receive and manage monetary benefits.

Regarding countries which regulate access to GRs and/or aTK, but do not have information on monetary benefits received, key reasons expressed by survey respondents were that:

- The national ABS framework is not yet in place or not yet fully operational (47%);
- The country has an operational framework, but has not yet received monetary benefits (34%);
- There is a lack of enforcement of ABS legislation/MAT (6%) or a lack of coordination among relevant entities (3%);
- The information on monetary benefits is confidential (6%);
- The information is held by IPLC s (3%).

2.2.3 Key results – collecting information on non-monetary benefits

Approximately half of the countries which regulate access (51%)³³ have information available on at least one type of non-monetary benefit. The most common types of non-monetary benefit for which information is available, are “the sharing of research and development results” (39%), “collaboration, cooperation and contribution in scientific research and development programmes” (33%) and “access to scientific information relevant to the conservation and sustainable use of biological diversity” (22%).

When asked how information on non-monetary benefits was received and handled by the country, digital (64%) and/or printed (44%) documents were the most common responses. Countries more commonly indicated they manually compile and analyze data offline, e.g. through Excel tables (16%), rather than through online databases or platforms (8%). Four countries (8%)³⁴ also indicated they have established national indicators for non-monetary benefits, such as:

Africa, and Spain.

³²Brazil, Cameroon, Colombia, Ethiopia, India and South Africa.

³³Argentina, Australia, Belarus, Belgium, Botswana, Brazil, Cambodia, Cameroon, Colombia, Congo, Costa Rica, Côte d’Ivoire, Cuba, Ethiopia, France, Lao People’s Democratic Republic, Malaysia, Nigeria, Panama, Peru, Seychelles, South Africa, Spain, Togo, and Vietnam.

³⁴Brazil, Cameroon, Congo, and Vanuatu.

- Number of collaborations, publications or research reports;
- Number of researchers or students trained;
- A currency value estimate for the value of non-monetary benefits received; or
- Number of patents.

For countries which regulate access to GRs and/or aTK, but have little to no information available on non-monetary benefits received, the main reasons expressed were:

- that the information is not readily available or compiled, e.g. contained in MAT, reports, or held by other national entities (29%);
- that the national ABS framework is not yet in place or not yet fully operational (24%); or
- that there is a lack of capacity and/or of human and financial resources to gather and manage this information (16%);
- that there was no reporting obligation to the ABS focal point or CNA (10%); or
- that the nature of the information on non-monetary benefits received was too diverse or fragmented to compile (6%).

Box 4 — Complementary information collected from the survey on ABS indicators for the Kunming-Montreal Global Biodiversity Framework: Which benefits are the most important?

The survey also collected information on which benefits were considered to be the most important by CBD Parties. Countries which had indicated that they regulate access to GR and/or aTK (49 countries) were asked to select up to five benefits from the list included in the Annex of the NP. Countries based their selection on benefits defined in national legislation, covered in current ABS agreements, most received to date or those considered to be most desirable.

For **monetary benefits**, the most important benefits highlighted were:

- payment of royalties (20 responses);
- access or sample collection fees (19 responses);
- research funding (16 responses);
- joint ownership of intellectual property rights (12 responses);
- special fees or contributions to funds supporting the conservation and sustainable use of biological diversity (11 responses); and
- license fees (10 responses).

For **non-monetary benefits**, the most important benefits highlighted were:

- sharing of research and development results (32 responses);
- collaboration, cooperation and contribution in scientific research and development programmes (27 responses);
- collaboration, cooperation and contribution in education and training (21 responses);
- strengthening of capacities for technology transfer (17 responses);
- transfer of knowledge and technology (15 responses);
- institutional capacity-building (15 responses); and
- access to scientific information relevant to the conservation and sustainable use of biological diversity (14 responses).

To this end, more research will be done to examine the perspectives of the provider countries on the implementation and effectiveness of ABS measures^a. Effectiveness is understood as the satisfaction of the actors in the provider countries with a special focus on fairness and equity as well as whether the measures contribute to the protection of biological diversity.

^aThe new project “ABS - Cooperation at eye level”, led by Dr. Nele Kampffmeyer at the Öko Institut in Germany and funded by the German Federal Agency for Nature Conservation, started in January 2024 and is expected to be completed in March 2026. Based on a categorisation of different monetary and non-monetary benefit sharing measures, primary data will be collected through expert interviews and a subsequent online survey to assess the actual agreements.

2.2.4 Challenges in the ABS reporting chain

To be able to report on benefits shared, information needs to flow from the users sharing benefits to their beneficiaries and then onward to the national authorities, who should aggregate the information and report it to the CBD. During interviews with country representatives, the main challenges for Parties to compile the information and report on benefits shared were discussed and analyzed. Some of them like the time lag between the granting of access and the benefits received, multiple actors involved (several CNAs granting permits and multiple beneficiaries) and confidentiality issues were discussed previously in this chapter. Table 4 summarizes the main challenges in the reporting chain and suggests possible solutions. Figure 4 shows the different points at which these challenges may be encountered in current national ABS systems.

Table 4: *Common challenges in the ABS reporting chain and possible solutions.*

| Challenge | Description | Possible solution(s) |
|---|--|---|
| Time lag from access to sharing benefits | <p>Significant time span between access to GR, utilization and benefit-sharing (Figure 3).</p> <p>Limited capacity to track benefits shared and to compile and analyze data in a systematic way (data management).</p> <p>With a high number of agreements to consolidate manually and gather all benefit-sharing reports from users over time is difficult if not impossible. In addition, personnel turnover can cause gaps.</p> | <p>National data structures (preferably web-based) to collect and manage information generated under ABS agreements. This tool would function as a repository and allow systematic cross-checking with users and all involved stakeholders, upload proofs and reports on shared benefits by user.</p> <p>The new systems will require capacity-building for both providers and users.</p> |
| Users unsure how to report | <p>There is lack of clarity on when and how users should report back on benefits shared.</p> | <p>Ensure clear clauses on reporting benefits shared are included in MAT or ABS permits.</p> <p>Give clear instructions on where, when, how to report.</p> |

Table 3, *continuation from the previous page*

| Challenge | Description | Possible solution(s) |
|---|--|--|
| Non-centralized national systems | <p>Multiple entities/CNAs/IPLC s responsible for PIC and MAT.</p> <p>Diverse groups of beneficiaries; benefits can be shared directly with providers, collaborators, IPLC s.</p> <p>When multiple actors are involved, it is more complex to compile the information on benefits received.</p> | <p>A national mechanism is needed to consolidate all data on benefits received by multiple actors at the national level.</p> |
| Confidentiality | <p>Confidentiality agreements may restrict certain information to be shared.</p> | <p>Include sharing the information on benefits in an aggregated manner as part of MAT.</p> |

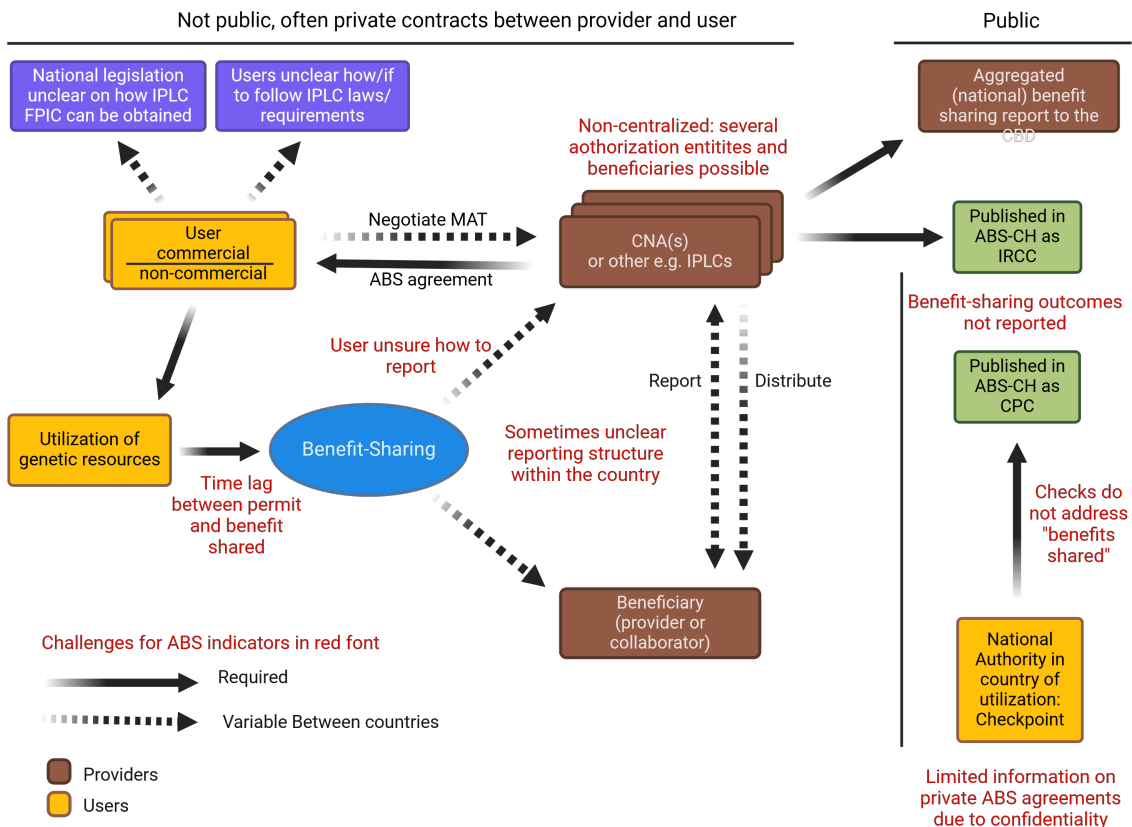


Figure 4: Main challenges in the ABS reporting chain (highlighted in dark red font) can be found at different points in the current ABS systems. The monitoring system established by the NP (IRCCs, checkpoints, CPC) are not intended to address benefits shared. Created with BioRender.com.

2.3 Key findings

- Reporting on monetary and non-monetary benefit indicators would require countries that regulate access to GR and/or aTK to provide information that is in many cases not currently collected at the national or international level. Countries that have not regulated access to GRs and benefit-sharing would not need to collect and provide any related information.
- Many countries have regulated access to their GR and/or aTK in a decentralized manner, involving several public entities that grant permits and recognizing several beneficiaries of their ABS system, which negotiate MAT and also could receive benefits directly from users. The diversity and potential high number of providers and beneficiaries creates a challenge to collect and manage information to report on ABS indicators.
- Most countries collect information from printed and/or digital documents and manage information manually. The development of online comprehensive ABS platforms and training on data collection, as well as guidance and information on indicator

methodology, could be needed to support ABS indicator development.

- MATs relating to aTK are commonly negotiated by IPLC s as holders of that knowledge, a process which may or may not involve the national government. Benefits could also be shared directly to IPLC s. It is necessary to create an internal mechanism to compile information and eventually be able to report to the CBD.
- Few countries have readily available information on monetary benefits, as many countries do not yet have a fully operational ABS framework or have only concluded agreements for non-commercial use which do not involve monetary benefits. Some countries have established specific funds or accounts for ABS, which may help with reporting (e.g. deposits made to account per calendar year or other determined reporting period).
- Most countries mentioned receiving non-monetary benefits. However, the data on non-monetary benefits is not generally compiled or readily available. The number of research results shared, or the number of collaborative scientific research and development programmes were the most common type of non-monetary benefit for which information is available. On the other hand, fewer countries mentioned they have received monetary benefits.
- Parties will need to consider the role of confidentiality in their ABS systems. They might consider pre-formulated clauses that allow them to gather and share aggregate information in order to report on benefit-sharing for the KMGBF indicators.
- Voluntary disclosure measures from users of genetic resources could also be explored and envisaged to complement national reporting, as users may have an interest in showing that they are complying with ABS policies and agreements as part of their compliance with the Sustainable Development Goals or other strategies.
- Indicators on benefits received are a useful first step towards measuring the impacts of ABS at an international scale. However, indicators remain a partial measure of the impact of benefit-sharing for people and planet, not suited for instance to reflect broader benefits accruing to humankind, such as the social recognition of providers or the advancement of knowledge.



3. National reporting on bilateral benefit-sharing

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Under the CBD and its current bilateral benefit-sharing system for GRs and aTK, the recipient of benefits shared is likely to be a country or recognized providers within a country. Under other internationally agreed ABS instruments that rely on multilateral approaches to benefit-sharing, a single fund would receive all the monetary benefits, such as the one established under the ITPGRFA (see chapter 5), and presumably the multilateral mechanism under the CBD for sharing benefits from the use of DSI, which includes a “global fund”, and the fund foreseen by the BBNJ Agreement (see chapter 6).

Goal C and Target 13 of the KMGBF [7, 9] will drive new strategies for collecting information on “benefits shared”. It is important to note that Target 13 also calls for facilitating appropriate access to genetic resources. The implementation of facilitated ABS measures is the first step to grant more access to GR, encourage research and increase benefit sharing and its contributions to conservation and sustainable use of biodiversity. In this regard, Parties may also decide to include indicators to measure progress in facilitated access (e.g. implementation of Article 8 of the NP), as part of the KMGBF monitoring framework.

This chapter will propose possible indicators under the bilateral ABS system established by the CBD and the NP to be measured at the national level. It will include methodological considerations and recommendations for Parties to facilitate the collection of the necessary information for reporting, including addressing the common barriers that have been described and discussed in the previous chapter.

3.1 Monetary benefits received

Monetary benefits can all be measured in terms of the amount of money received, therefore, the information on monetary benefits listed in the annex to the NP can be aggregated and reported as a single indicator: **monetary benefits received in accordance with applicable internationally agreed ABS instruments (in United States dollars)**.

One primary vehicle for ABS indicator information is likely to be the national reports. At NP COP-MOP 4, guidelines for a first national report on the implementation of the NP were formulated in the form of a questionnaire (16). This questionnaire includes a section about contribution to conservation and sustainable use and benefits received, where Parties must report whether and which monetary and/or non-monetary benefits they have received, including the amount of monetary benefits received during the reporting period (in US dollars). Countries should be able to disaggregate the information by monetary benefits received by different beneficiaries recognized in their national legislation and report on benefits received by IPLCs.

In addition to the common reporting challenges listed in Table 3, different types of monetary benefits present particular features that must be considered for measuring (Table 5). Countries may take into account these particularities during MAT negotiations. Further in this chapter, recommendations to Parties to facilitate the collection of information for reporting monetary benefits are included in section 3.3 and methodology considerations are proposed in section 3.5.

Table 5: List of monetary benefits from the annex of the Nagoya Protocol and some particular characteristics. The monetary benefits that were considered to be the most important by CBD Parties in the survey on ABS indicators for the KMGBF are highlighted with a () (Box 4)*

| Monetary benefits from NP annex | Particularities |
|--|---|
| * (a) Access fees/fee per sample collected or otherwise acquired | Easy to implement, payment during access application |
| (b) Up-front payments | Easy to implement, payment during access application |
| (c) Milestone payments | Happens during utilization, CNA or other authority need check in/receive several reports over time, milestones need to be clearly defined and agreed on |

Table 5, continuation from the previous page

| Monetary benefits from NP annex ¹ | Particularities |
|--|--|
| *(d) Payment of royalties | After successful utilization/commercialization, regular annual reports on revenue needed |
| (e) License fees in case of commercialization | After successful utilization/commercialization |
| (f) Special fees to be paid to trust funds supporting conservation and sustainable use of biodiversity | Can happen in several time points along the value chain |
| (g) Salaries and preferential terms where mutually agreed | Can happen in several time points along the value chain |
| *(h) Research funding | Can happen in several time points along the value chain |
| (i) Joint ventures | Can happen in several time points along the value chain |
| (j) Joint ownership of relevant intellectual property rights | Royalties are generated after the licensing of intellectual property (if successful) |

3.2 Non-monetary benefits

Non-monetary benefits can be received by different beneficiaries or even by society as a whole. In addition, it is not rare for countries to have more than one CNA granting ABS permits in different regions or for different groups of species (e.g. marine, forestry, domesticated animals, crops, etc.). The involvement of multiple stakeholders and beneficiaries, introduces complexity in the compilation of information on non-monetary benefits. The users of GRs or aTK usually have to report on shared benefits to the CNA that granted them the corresponding permits. Then, the information needs to be compiled and analyzed and eventually cross-checked with the beneficiaries. In order to monitor the benefits shared according to MAT, some Parties ask users for an annual report on the process of the utilization of the GR and benefits shared. Some users will be checked upon re-issuing a permit if past agreements have been fulfilled.

On the other hand, given the diversity of possible non-monetary benefits described in the annex to the NP [2], which could be quantified with very different parameters, it is not possible to aggregate the information, which introduces complexity in the reporting of non-monetary benefits. To face the diversity of non-monetary benefits, many country

representatives and ABS experts found it a good idea to classify non-monetary benefits into a few categories and define the types of non-monetary benefits to be reported.

Then a new headline indicator is also proposed: **Non-monetary benefits arising from applicable internationally agreed ABS instruments**. The proposed indicator is defined as the average rate of change in the types of non-monetary benefits shared, and aims to track trends in non-monetary benefits, responding to the wording in Goal C that benefits should “substantially increase by 2050”.

3.2.1 Categorizing non-monetary benefits from the Nagoya Protocol Annex

The indicative list of non-monetary benefits included in the annex of the NP [2] could be used as a basis for developing a (standardized) framework to evaluate non-monetary benefits (similar approach proposed by the CIRAD study included in chapter 5). In order to facilitate the measurements, the 17 suggested non-monetary benefits were grouped into the five categories listed in the First National Report format [19] (Table 6):

1. Sharing of information, research results
2. Scientific collaboration and/or joint publications
3. Access to and transfer of technology
4. Capacity-building, capacity development and/or training
5. Sustainable development benefits (such as improved food security, livelihood security, etc.)

Some of the described benefits in the annex of the NP [2] are more difficult to approach due to complexity, e.g. impact indicators for capacity building, or due to the fact that they are rather broad formulations, e.g. *Strengthening capacities for technology transfer or Social recognition*. Those benefits need to be evaluated based on the agreed terms and need a more qualitative approach.

Table 6 addresses the main challenges for measuring non-monetary benefits and proposes possible types of non-monetary benefits to be reported for each category. Recommendations on what countries can do to facilitate the collection of information are included in section section 3.3 and methodology considerations are proposed in section section 3.5.

On the other hand, some of the listed non-monetary benefits (Table 6) bear the potential to be evaluated on a global level, particularly in the proposed categories *Sharing of information, research results, Scientific collaboration and/or joint publications and Access to and transfer of technology*. Quantifying the number of joint publications and joint intellectual property rights is a good proxy for measuring collaboration on a global level independent from what users report to the national level (this will be further described and discussed in chapter 4).

Table 6: *List of non-monetary benefits from the annex of the NP divided into five categories, challenges for measuring and possible types of non-monetary benefits to be reported per category. The non-monetary benefits that were considered to be the most important by CBD Parties in the survey on ABS indicators for the KMGBF are highlighted with a (*) (Box 3)*

| Category | Non-monetary Benefits* | Challenges for measuring | Possible types of non-monetary benefits to be reported |
|--|---|---|--|
| Sharing of information, research results | <p>*(a) Sharing of research and development results</p> <p>*(k) Access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies</p> <p>(m) Research directed towards priority needs, such as health and food security, taking into account domestic uses of genetic resources in the Party providing genetic resources;</p> <p>(e) Admittance to ex situ facilities of genetic resources and to databases</p> | <p>Time lag between research and development and publications, and difficulties in following up on the transfer of research results.</p> <p>The reception of information is not centralized. It could be received by the beneficiaries (IPLCs, scientific institutions, others) and/or by one or more national authorities.</p> | <p>Number of research and development results arising from ABS instruments</p> <p>Number of scientific publications relevant to conservation, sustainable use, food security, and public health arising from ABS instruments</p> |

Table 6, continuation from the previous page

| Category | Non-monetary Benefits* | Challenges for measuring | Possible types of non-monetary benefits to be reported |
|--|--|---|--|
| Scientific collaboration and/or joint publications | <p>*(b) Collaboration, cooperation and contribution in scientific research and development programs, particularly biotechnological research activities, where possible in the Party providing genetic resources</p> <p>(n) Institutional and professional relationships that can arise from an access and benefit-sharing agreement and subsequent collaborative activities</p> | <p>The agreements on scientific collaboration lies within the cooperation partners.</p> <p>There is no clarity on how users should report on scientific collaboration. A mechanism to report to the national authorities is needed.</p> | Number of joint scientific publications arising from ABS instruments with authors from the provider country, where appropriate |
| Capacity-building, capacity development and/or trainings | <p>*(d) Collaboration, cooperation and contribution in education and training</p> <p>(j) Training related to genetic resources with the full participation of countries providing genetic resources, and where possible, in such countries</p> <p>*(h) Institutional capacity-building</p> <p>(i) Human and material resources to strengthen the capacities for the administration and enforcement of access regulations</p> | <p>There is no clarity on how users should report on capacity building and training. Detailed information about capacity building activities lies with the training facility. A mechanism to report on capacity building to the national authorities is needed.</p> | Indicator related to capacity-building and development arising from ABS instruments (TBD, see KMGBF-target 20) |

Table 6, continuation from the previous page

| Category | Non-monetary Benefits* | Challenges for measuring | Possible types of non-monetary benefits to be reported |
|---|---|--|---|
| Access to and transfer of technology ² | <p>(f) Transfer to the provider of the genetic resources of knowledge and technology under fair and most favorable terms, including on concessional and preferential terms where agreed, in particular, knowledge and technology that make use of genetic resources, including biotechnology, or that are relevant to the conservation and sustainable utilization of biological diversity</p> <p>(h) Strengthening capacities for technology transfer</p> <p>(c) Participation in product development</p> <p>(q) Joint ownership of relevant intellectual property rights.</p> | <p>There is not a clear understanding about what is considered technology transfer. Relies on successful utilization of GR</p> | <p>Number of technology transfer events arising from ABS instruments.</p> <p>Technology transfer events may include: equipment, joint patents, licenses and other intellectual property rights (IPR); new products, processes or services that have been exchanged; new startups.</p> |

²According to the Strategy for the practical implementation of the programme of work on technology transfer and scientific and technological cooperation [20] “The concept of technology as generally understood under the Convention includes both “hard” and “soft” technology. The notion of hard technology refers to the actual machinery and other physical hardware that is transferred, while the category of soft technology refers to technological information or know-how. Such “soft” technology is often transferred within long-term scientific and technological cooperation including through joint research and innovation which move ideas from invention to new products, processes and services”

Table 6, continuation from the previous page

| Category | Non-monetary Benefits* | Challenges for measuring | Possible types of non-monetary benefits to be reported |
|----------------------------------|---|---|---|
| Sustainable development benefits | (l) Contributions to the local economy (o) Food and livelihood security benefits (p) Social recognition | Vague description, needs specification. There is no clarity on how users should report back. A mechanism to report to the national authorities is needed. | Number of projects contributing to sustainable development arising from ABS instruments |

The non-monetary benefits types will be collected through national reports. Since, each type of non-monetary benefit is measured in a different unit, a simple summation across them is not possible. Hence, the calculation of the average rate of change is proposed to allow aggregation across non-monetary benefits.

3.3 Recommendations for more effective information collection at the national level

To be able to report on indicators measured at the national level, it is necessary that countries implement tools that facilitate collection, compilation and report of information. Some recommendations are included in this section for gathering information related to monetary and non-monetary benefits shared. These suggestions are based on the interviews with country representatives and ABS experts.

3.3.1 Establish a national fund as central tool for monetary benefits collection

Some countries have followed, at the national level, the approach of establishing a mechanism (a specific fund or an account) that centralizes the reception of monetary benefits. A centralized system eases the accountability of the transactions and the calculation of the monetary benefits received and seems to be a good managing tool to receive payments based on ABS agreements. Such a fund creates the potential to have a quick overview on the monetary flows and creates the opportunity to assess allocations used for conservation

and protection of biodiversity.

A national fund specifically established to receive monetary benefits from ABS transactions, for example as is the case in Brazil and South Africa, can centralize accountability of the monetary benefits from ABS agreements and will be simple to report on for an ABS indicator. For example, the Brazilian fund can be disaggregated at different levels of monetary benefits received per biome, taxonomic group or sector. In Peru, a fund especially for IPLCs has been established which also can be directly reported and “disaggregated to IPLCs” (a stated goal of the KMGBF).

In general, money from the fund can be distributed to the provider of a GR or may be used for conservation projects [26]. This type of fund allows easy identification of the payments made by users and avoids the risks associated with payments made to the general budget of a country, where it will be more difficult to track the initial payment and almost impossible to ensure that the funds are used for biodiversity policy objectives. However, ministries of finance often pursue the principle of universality of the government budget whereby all resources are directed to a common pool or fund, to be allocated and used for expenditures according to the current priorities of the government, where earmarking is forbidden or highly discouraged. Thus, inevitably, like with much of ABS, each country will have unique circumstances.

In case various beneficiaries directly receive monetary benefits from the user, in an independent and decentralized manner, collecting aggregate data will be challenging. The alternative in case of multiple recipients of monetary benefits is to implement a mechanism (e.g. an online tool) to compile at the national level the information related to the effective amount and date of those payments and include in the MAT clauses related to the user’s obligation to report to just one centralized national authority on monetary benefits shared directly with multiple beneficiaries.

3.3.2 Anticipate confidentiality issues during non-disclosure agreements negotiations

Some country representatives (chapter 2) indicated that confidentiality issues are an important obstacle to report on monetary benefits. They could not provide information on monetary benefits received due to Non-Disclosure Agreements (NDA) that restrict parties to disclose confidential information included in the MAT and other ABS-related documents. Confidential information usually includes trade secrets like new methods, formulas or designs. In the case of commercial utilization of GR or aTK, information on monetary benefits is also sensitive and usually declared as confidential. On the other hand, based on some interviews with ABS experts from the private sector, confidentiality issues would be prevented if those are discussed and agreed at an early stage of MAT negotiations and if

aggregated data is reported. To this end, standardized language can be included in NDAs that explicitly allows the recipient of the confidential information to report on benefits received, at the aggregate level, in their national reports under the CBD and the NP.

3.3.3 Develop a national repository where all information in the reporting process on benefits is stored and information is managed

Data management systems for ABS agreements granting and benefits reporting are a good tool to monitor benefit-sharing at national level and could potentially generate reminders about check in and reporting duties of users of GRs or aTK. Some countries have already introduced national virtual systems to apply for access to GRs and report on benefit-sharing, for example Costa Rica³. At the virtual platform, managed by the *National Commission on Biodiversity Management* (CONAGEBIO), home of the ABS NFP and CNA in Costa Rica, a user seeking access to GRs can create an account and apply for an ABS permit. Once the application is successfully processed the corresponding permit is granted and uploaded to the platform. The commitments on monetary and non-monetary benefit sharing and corresponding deadlines are also programmed in the system, which will send out reminders to users on reporting obligations for the concluded benefit-sharing activities. The users can upload benefit-sharing reports (e.g. research results or capacity building reports) and appropriate information to support the report. The CNA and NFP have their own data management system, where all incoming documents are stored at one place, allowing the quantification of non-monetary benefits like publications, reports on research results, capacity building or training activities among others. In addition to the virtual web-based application system, CONAGEBIO's website also hosts a database of publications with GR from Costa Rica, demonstrating access and sharing of research results.

This kind of virtual platform and other established national web-based tools for ABS (for example, Republic of Korea⁴, or Brazil⁵) are good examples to streamline the application process and create an opportunity to manage access and reporting obligations from users at one place and thus reducing the related administrative burden of the public administration.

3.4 Key findings

- Monetary benefits can all be measured in terms of the amount of money received, therefore, the information on monetary benefits listed in the annex to the NP can be

³<http://201.204.46.62/Conagebio/login.xhtml>

⁴<https://www.abs.go.kr/>

⁵<https://sisgen.gov.br/>

aggregated and reported as a single indicator (section 3.5).

- Given the diversity of possible non-monetary benefits described in the annex to the NP [2], which could be quantified with very different parameters, it is not possible to aggregate the information, which introduces complexity in the reporting of non-monetary benefits. As an alternative, the 17 suggested non-monetary benefits were grouped into five categories and possible types of non-monetary benefits to be reported and methodology recommendations were proposed (section 3.5).
- Some of the listed non-monetary benefits bear the potential to be collected globally, disaggregated nationally and made available to countries for their use in their national report, particularly in the proposed categories Sharing of information, research results, Scientific collaboration and/or joint publications and Access to and transfer of technology (further discussed in chapter 4).
- Countries should be able to disaggregate the information by monetary benefits received from the utilization of GR and aTK and by different beneficiaries recognized in their national legislation and report on benefits received by IPLCs.
- A national fund as a centralized system for transferring all monetary benefits at the national level eases the accountability and reporting. The alternative in case of multiple recipients of monetary benefits is to implement a mechanism to compile the information at the national level.
- To be able to report on monetary benefits received, countries have to anticipate confidentiality issues during NDA negotiations. To this end, standardized language can be included in these agreements that explicitly allows the recipient of the confidential information to report on benefits received, at the aggregate level.
- Countries should include in the MAT clauses related to the user's obligation to report to just one centralized national authority on monetary and non-monetary benefits shared directly with multiple beneficiaries.
- Developing a national data management system (e.g. a virtual platform or system appropriate for the national circumstances) where all information in the reporting process is stored and managed is a good tool to monitor benefit-sharing at national level and facilitates reporting.

3.5 Indicator recommendations for national reporting on benefit-sharing

For chapter 3 to chapter 7, we present suggestions for new benefit-sharing indicators at the end of the chapter based on the analysis in the respective chapters. These indicators could then be aggregated across both national and global benefit-sharing reports under the CBD and NP as well as with the existing and upcoming multilateral benefit-sharing mechanisms

3.5 Indicator recommendations for national reporting on benefit-sharing⁴⁵

established under relevant ABS international instruments. In this way, the indicators could cumulatively deliver to the ABS headline indicators for both Goal C and Target 13 of the KMGBF.

For monetary benefits received bilaterally in accordance with the CBD and the NP, it will likely be up to the national ABS authorities to aggregate financial information internally. Then, this information could be aggregated with the monetary benefits received under other internationally agreed ABS instruments, such as the ITPGRFA, the CBD DSI multilateral mechanism and the BBNJ Agreement. For non-monetary benefits, based upon the above analysis (Table 6), we propose here and throughout the use of five categories which could be used across multiple benefit-sharing instruments.

For monetary and non-monetary benefits indicators, CBD Parties will report on the KMGBF goals and targets, adapted in their National Biodiversity Strategies and Action Plans (NBSAPs), through the National Report to the CBD according to the COP decision 15/6 [21] and using an online tool⁶. The proposed types of non-monetary benefits in this study are compatible with those included in the National Report on the implementation of the NP questionnaire [19] which helps with the coherence and the work at national level. Also the ABS-CH and the CBD national reporting online tool are linked, to avoid entering the information twice.

As a general rule, benefits received from granting access to GRs and aTK should be collected in a way that allows disaggregation. Besides being recognized as custodians of aTK, IPLCs are also recognized as custodians of certain GRs (e.g. located in their territories) thus also as beneficiaries of their utilization. Because of this, it is important to also disaggregate the information and report the benefits received by IPLCs. Also, the KMGBF is gender-responsive, so the indicators should be also disaggregated by gender when possible.

Monetary benefits

- Proposed headline indicator: Monetary benefits received in accordance with applicable internationally agreed ABS instruments (in United States dollars).
- Custodian: Measured at the national level for GR and aTK under the CBD and NP
- Methodology recommendations: National authorities could establish a national fund as a central tool to collect monetary benefits or, as an alternative, if various beneficiaries directly receive monetary benefits from the user, develop a mechanism, preferably online, to compile at the national level the information. In the latter, countries should include in the MAT clauses related to the user's obligation to report to just one centralized national authority on monetary benefits shared directly with multiple beneficiaries. The basic information needed would be the amount of money, date of those payments, and the beneficiaries, to be able to report within a time period

⁶<https://ort.cbd.int/>

and disaggregate the information by IPLCs and other beneficiaries. For countries to be able to report on monetary benefits, barriers from confidentiality agreements should be prevented at an early stage of MAT negotiations. Standardized language can be included in confidentiality agreements that explicitly allows the recipient of the confidential information to report on benefits received, at the aggregate level. Model clauses could be developed.

- Possible disaggregation: from access to GR or aTK; benefits received by IPLCs.

Non-monetary benefits

- Proposed headline indicator: Non-monetary benefits arising from applicable internationally agreed ABS instruments

Regarding non-monetary benefits, possible types of non-monetary benefits were included for the five categories analyzed in Table 6:

Sharing of information, research results (see chapter 4)

- Can be measured at the global level and made available to countries for their use in their national reports. See chapter 4.
- Some information could still be compiled at the national level for internal use if appropriate. For example, countries may wish to include in the MAT the user's obligation to report, as appropriate, on research-based recommendations for the conservation, management and sustainable use of biodiversity.

Scientific collaboration and/or joint publications (see chapter 4)

- Can be measured at the global level and made available to countries for their use in their national reports. See chapter 4.

Capacity-building, capacity development and/or trainings

- Indicator related to capacity-building and development arising from ABS instruments (TBD). This type of non-monetary benefit will be defined based on the indicator developed for target 20 of the KMGBF.
- Custodian: Measured at the national level.
- Methodology recommendations: Countries should include in the MAT the amount of capacity development activities expected and the user's obligation to report back. Internally, countries could compile more information on capacity-building, capacity development and training to measure other indicators (e.g. impact indicators) that are difficult to standardize and aggregate at the global level. Countries should define a centralized point to receive the reports from users. The basic standard reporting obligations might include:
 - number of participants
 - topic of the capacity-building, capacity development and/or training activity

3.5 Indicator recommendations for national reporting on benefit-sharing⁴⁷

- target audience and/or beneficiaries
- monetary value for implementing the activities
- Possible disaggregation: by country, by beneficiaries (IPLC, women, youth).


Access to and transfer of technology

- Number of technology transfer events arising from ABS instruments⁷.
- Custodian: Measured at the national level. This type of non-monetary benefit could also be measured at the global level, assessing joint intellectual property rights from patent applications (chapter 4) and quantifying new technologies and outputs (e.g. crop varieties) developed and shared under the ITPGRFA (chapter 5). The information measured at the global level can be disaggregated nationally and made available to countries for their use in their national report. .
- Methodology recommendations: Countries could include in the MAT the possible new technologies (joint IPR, new products, processes or services, etc) that could be developed by the project, the terms under which they will be shared and reporting obligations (when, how, to whom). The basic standard reporting obligations might include:
 - beneficiaries
 - description of the technology transferred
 - monetary value for developing and transferring the new technology
- Possible disaggregation: by country if global, by beneficiaries (IPLC, women, youth).

Sustainable development benefits

- Number of projects contributing to sustainable development arising from ABS instruments.
- Custodian: Measured at the national level.
- Methodology recommendations: Countries could include in the MAT the user's obligation of reporting back on the contributions to sustainable development. Countries should develop standard formats for users to report and communicate clear reporting obligations (when, how, to whom). Countries should define a centralized point to receive the reports from users. The basic standard reporting obligations might include:
 - beneficiaries
 - description to the contributions to sustainable development
 - monetary value of the contributions
- Possible disaggregation: by beneficiaries (IPLC, women, youth).

⁷Technology transfer events may include: equipment, joint patents, licenses and other intellectual property rights (IPR); new products, processes or services that have been exchanged; new startups.



4. Global reporting on bilateral non-monetary benefit-sharing

Genuar Núñez-Vega & Amber H. Scholz

Although they tend not to make headlines, non-monetary benefits are on equal footing with monetary benefits. Non-monetary benefits can be less tangible and tend to be more diffuse in their impact. However, non-monetary benefits can have significant social, economic and ecological impact that could exceed those from monetary benefits generated under ABS agreements [26]. It is thus critical that non-monetary benefits be better quantified both to gain visibility and ultimately make better informed policy decisions.

The Science Policy & Internationalisation (SPI) department at the Leibniz Institute DSMZ leads a project entitled *Examining trends in non-monetary benefit-sharing* (ET-NMBS), funded by the German Federal Agency for Nature Conservation (BfN), which is developing pilot methods and tools to quantify some forms of non-monetary benefit-sharing (Non-Monetary Benefit-Sharing (NMBS)) at the global level. The non-monetary benefits described here are outcomes from ABS permits. They are not explicitly based on MAT (which remain private bilateral information) but they go behind abstract “public good outcomes” as the presence of an ABS permit is known and documented in the publication.

In this chapter we present the project’s preliminary findings that could contribute to increased understanding and quantification of non-monetary benefits and propose three types of non-monetary benefits which could be collected globally, then disaggregated and made available to countries to be used in their national report.

4.1 Developing a new method to measure non-monetary benefits at the global level

As discussed above, the NP annex includes a list of 17 possible non-monetary benefits, but does not describe how they could be measured or what sort of data sources could be used. Given the robustness of the scientific publication ecosystem, we believe there are several opportunities for measuring non-monetary benefit-sharing at the global level. As a proof-of-principle, we selected four non-monetary benefits from the annex list that are amenable to global analysis:

- (a) Sharing of research and development results;*
- (b) Collaboration, cooperation and contribution in scientific research and development programs, particularly biotechnological research activities, where possible in the Party providing GRs;*
- (k) Access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies.*
- (m) Research directed towards priority needs, such as health and food security, taking into account domestic uses of genetic resources in the Party providing genetic resources;*

In order to assess these selected non-monetary benefits, we established a database of publications in which an ABS permit is directly listed (cited) in the text of the publication. Because these permits were identified in scientific publications, the link to scientific research results and international collaborations, and thus a potential proxy for NMBS, is inherent. The database can provide quantification of the number of research results conducted under an ABS agreement that were shared. Moreover, we can classify the journal topic and the research area to determine the representation of the research result in different research fields including in the fields of conservation, biodiversity, and sustainable use as well as other priority research areas such as public health or food security.

Using the author affiliation information (location of the authors via their institutional affiliations) listed in the publication, we can determine whether scientific collaboration took place and whether the co-authors were in the country that provided the GR using the methodology described in [27]. To improve accuracy, author tables were reviewed manually to reduce errors [28]. Our method requires access to full-text articles in order to search for ABS permits code anywhere within the article.

Below we describe the steps employed to build the ABS permit-publication database prototype.

4.1.1 Step 1: List of IRCCs in the ABS-CH

The search for ABS permits naturally began with an assessment of IRCCs available in the ABS-CH under the assumption that a standardized number could be cited by scientists within their research outcomes. Parties are required under article 17.2 of the NP [2] to upload non-confidential metadata from their ABS permits or equivalents to the ABS-CH which will subsequently automatically generate an IRCC. IRCCs have unique and persistent identifiers that support monitoring of the utilization of genetic resources [2] and these identifiers can be downloaded in bulk from the ABS-CH¹ By the end of 2023, there were 5,042 IRCC documents available, issued by 27 countries, 5 of them representing around 90% of all IRCCs created in the ABS-CH: India (3496), France (750), Spain (190), Argentina (100) and Kenya (93). Figure 5 shows the increase in IRCCs over time and the corresponding geographical distribution.

All IRCC identifiers were searched for within scientific articles in the Europe PubMed Central (PubMed Central (PMC)) database, a life science literature database with over 42 million abstracts and more than 9 million full text articles, using the RESTful APIs² and associated text-mining techniques (22). Out of 5,042 IRCC in the ABS-CH, only 28 (0.6%) are cited in 39 research articles in the non-monetary benefit database, which is a small number considering the amount of IRCCs and research articles available. Upon closer examination of texts, we found that researchers most often cite national ABS permit codes (not standardized across countries) rather than the IRCC identifiers, which are standardized and easier to digitally identify.

¹<https://absch.cbd.int/>

²<https://europepmc.org/RestfulWebService>

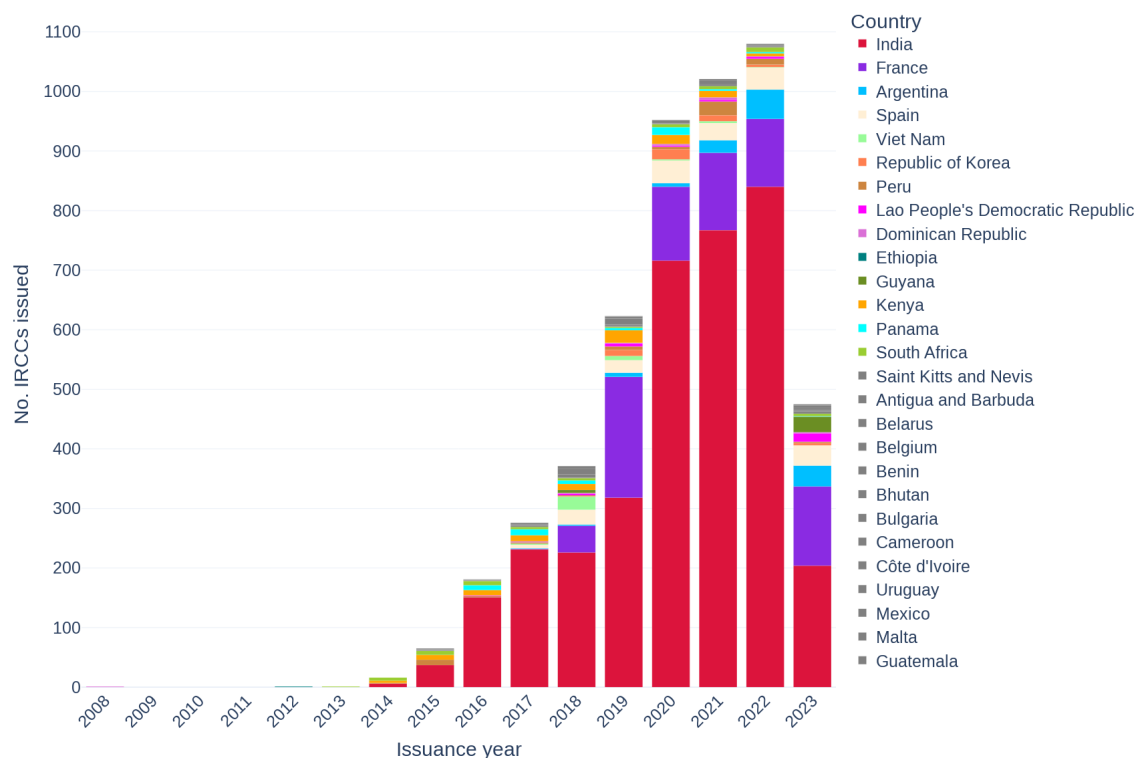


Figure 5: Number of Internationally Recognized Certificate of Compliance (IRCC) issued by countries in the ABS-CH by year through 2023. Countries in dark gray haven't issued more than 10 IRCCs per year. The ABS-CH had 5042 IRCC documents by the end of 2023.

4.1.2 Step 2: List of national ABS permit codes in the ABS-CH

When Parties to the NP submit the non-confidential metadata of their ABS permits to the ABS-CH to produce an IRCC, they also should include the “Reference number of the permit or its equivalent”, which make reference to any national ABS permit code. Based on that information, a supplementary list of national ABS permits codes from different countries was created to search for additional ABS permits mentioned in the Europe PMC database. When ABS national permit codes were used for searching, the number of records increased to 467 (as of December 2023).

4.1.3 Supplemental step: Direct requests of additional national ABS permit codes

Although making available permit info as an IRCCs on the ABS-CH is mandatory for NP Parties that regulate access, not all countries are Party to the NP but could still have national permits. And, additionally, not all Parties are compliant with the IRCC mandate. Thus, to supplement the list of national permit codes, the project contacted the country's ABS NFP by email requesting a list of their ABS permit codes. The project also offered to provide any information discovered from the use of national ABS permit codes back to the

country.

From a contact list of 178 NFPs obtained from the ABS-CH, 10 Parties replied. Australia and Costa Rica subsequently sent a list of all national ABS permit codes, which further increased the number of identifiers in the database and related publications. Additional lists of national ABS permit codes from Parties would improve the methodology and increase data on non-monetary benefit-sharing.

4.1.4 Step 3: Quality control of the ABS permit-publication database

When conducting *in situ* field research, many different kinds of permits can be required at the national level, some of which may not be ABS relevant. To ensure a high-quality dataset and a relatively high level of certainty that the database contains publications that cite ABS permits, every result from the Europe PMC was checked manually to avoid false positives and apply quality controls.

The database was created containing two main tables. The “abs_permits” table included fields about ABS permit codes cited in the article, the country issuing the ABS permit, and any ABS national authority mentioned in the publication. The “research_article” table included fields like unique article ids (pmid, pmcid, doi) and features like title, keywords, journal, authors, etc. Additionally, we included two flags during the manual curation process, “has_gr”, which indicates the article is actually accessing GRs, and “is_false_positive”, which indicates the article text has a string similar to a putative ABS permit code, but, upon manual evaluation, actually refers to something else (not directly related to ABS). Finally, the article section or sections where the ABS permit codes were cited is also annotated in the database.

During the manual revision of the scientific articles, some permit codes not present in the initial list of permits, were additionally identified as possible ABS permits. These codes and their issuing countries were subsequently annotated in the database and different quality controls were applied in order to assess if those codes represented actual ABS permits. An “abs_score” was assigned by the reviewer to each code, ranging from 0 to 3. When a code was certainly not an ABS permit, the reviewer assigned 0 and the record was discarded from further analysis. When a code was certainly an ABS permit, the reviewer assigned a score close to 3. A score of 2 was medium; 1 was considered low quality.

The dataset below contains all records where the ABS permit code has a likely or verifiable ABS agreement (“abs_score = 2 or 3”) and the article that cites the permit actually accessed GRs (“has_gr=1”). Table 7 shows the number of records that correspond to every abs_score. All false positives were excluded.

Table 7: Database composition based on ABS score for quality control of the ABS permit codes. The rows show the number of ABS permits and corresponding research articles and number of countries for high, medium, and low-quality scores.

| | High quality score | Medium quality score | Low quality score | Discarded |
|-----------------------------|--------------------|----------------------|-------------------|-----------|
| Number of ABS permits | 434 | 70 | 201 | 140 |
| Number of research articles | 467 | 37 | 88 | 67 |
| Number of countries | 20 | 10 | 19 | 27 |

4.2 Results: non-monetary benefits assessed at the global level

Based on the method described above, quantification of three types of non-monetary benefits can be made with this initial dataset (see Table 5):

1. Number of research and development results arising from ABS instruments
2. Number of scientific publications arising from ABS instruments relevant to conservation, sustainable use, food security, and public health
3. Number of joint scientific publications arising from ABS instruments with authors from the provider country, where appropriate

This information can be collected globally, using the methods described in this chapter, disaggregated nationally and made available to countries for their use in their national reports.

4.2.1 Number of research and development results arising from ABS instruments

We successfully created a database connecting 504 ABS permits from 22 countries to 492 research articles (Figure 6). The database is still growing as new ABS permit code patterns and new examples from collaborators arrive, but we can already show some trends in the non-monetary benefit-sharing on scientific publications. Furthermore, if countries provided their national ABS permit numbers, the database would rapidly expand.

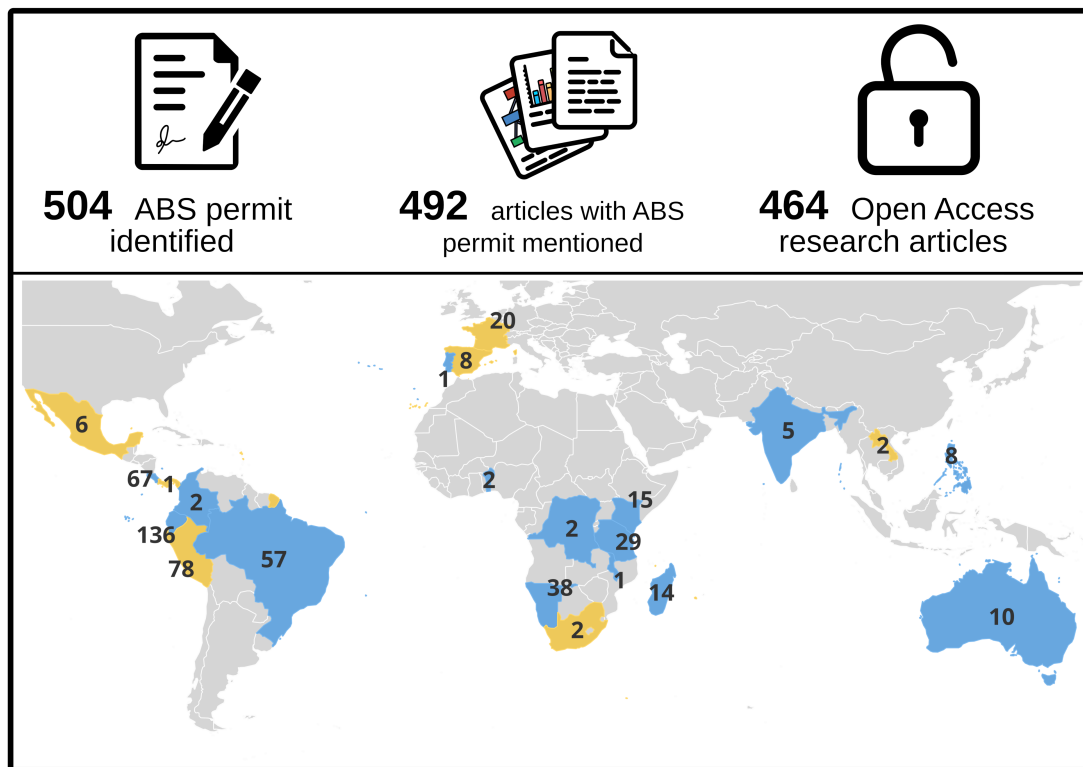


Figure 6: *Composition and geographical distribution of the ABS permit database created as part of the ET-NMBS project. Yellow represents countries where at least one IRCC code was mentioned in the scientific articles in our database, blue represents countries where ABS permit codes were mentioned in the scientific articles in our database, and gray represents countries with missing information in our database. The number of articles per country in the database is shown inside the polygons. 13 articles identified both IRCC and national ABS permit codes. ABS permits code with `abs_score` 3 and 2 were used for this figure.*

4.2.2 Number of joint scientific publications arising from ABS instruments with authors from the provider country, where appropriate

By analyzing the authorship, a proxy for international collaboration, in ABS cases from the publications in the database, we can also assess whether researchers in the GR-providing country were involved. Figure 7 shows that 69.7% of the articles in the database have at least one in-country author, which means in most ABS cases, a researcher in the country which provided the GR was substantially involved in the research.

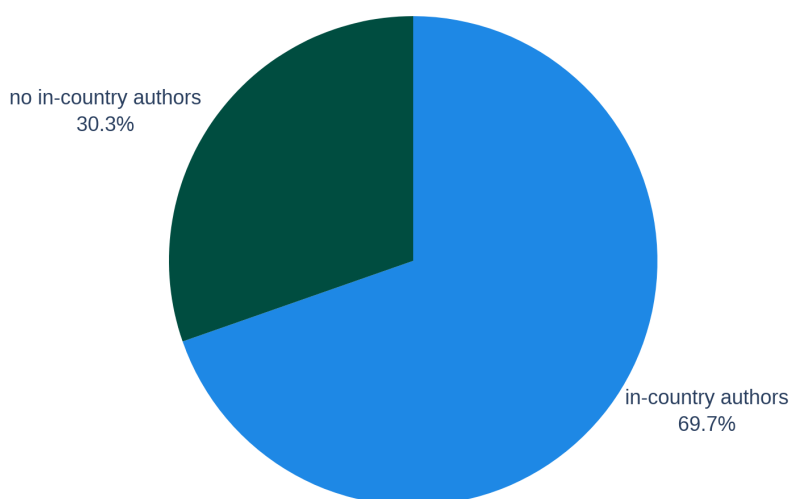


Figure 7: Percentage of articles with authors from the country that provided access to the GR (in-country) (in blue), or publications without an in-country author (in dark green). An in-country author describes authors where the geographical affiliation of the author is the same as the country that provided access to the genetic resources utilized in the research article.

4.2.3 Number of scientific publications arising from ABS instruments relevant to conservation, sustainable use, food security, and public health

The fields of research in the publications in the database (Figure 8) are diverse. Although many of the journals where the articles were published have a multidisciplinary scope (19.6%), the research results on the use of GRs are distributed across general topics such as “life sciences”, “public health” or “pharmacology”, or more specific topics such as “plants”, “viruses” or “entomology”, to name but a few. A visual look at the author-contributed keywords associated with the research articles, shown as a word cloud in Figure 9, reveals an even broader distribution of research topics. The most common keywords are “taxonomy”, “species”, “biodiversity” and “plant”, but other less common keywords highlight the potential impact of the research on “conservation”, “microbiome” or “phylogenetics”. It’s worth mentioning that the dominance of the keywords “Ecuador” and “Andes” is likely explained by an over-representation of articles from this region, as shown in Figure 9. As more data are included in the database, a better quantitative analysis could be applied, but these results show how the database provides the possibility to quantify other types of non-monetary benefits, such as “Research directed towards priority needs, such as health and food security, taking into account domestic uses of genetic resources in the Party providing genetic resources”, as proposed in the Annex to the NP.

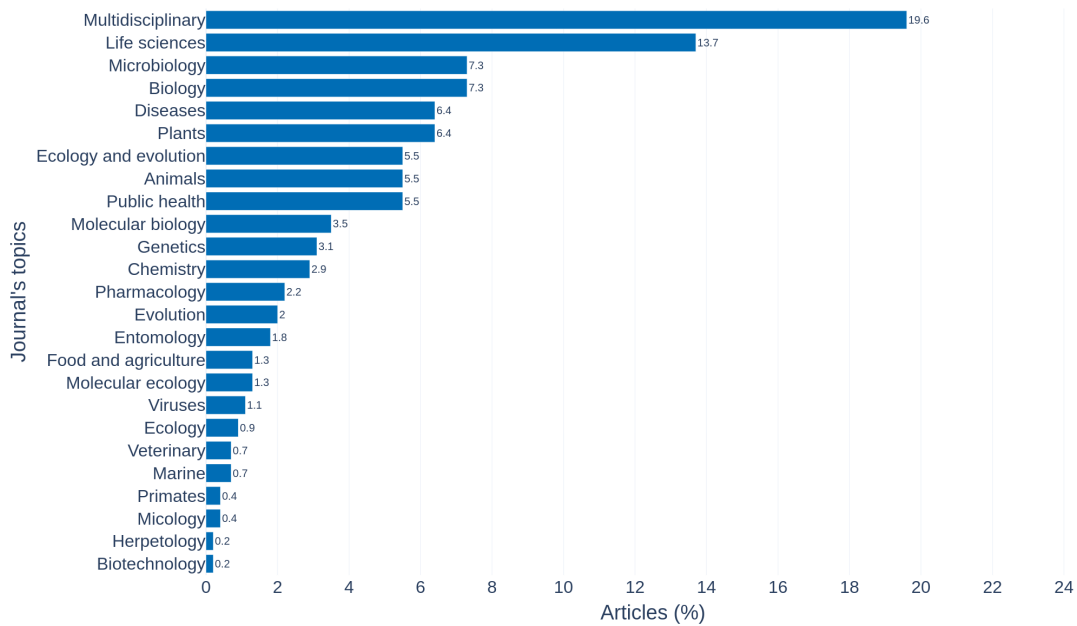
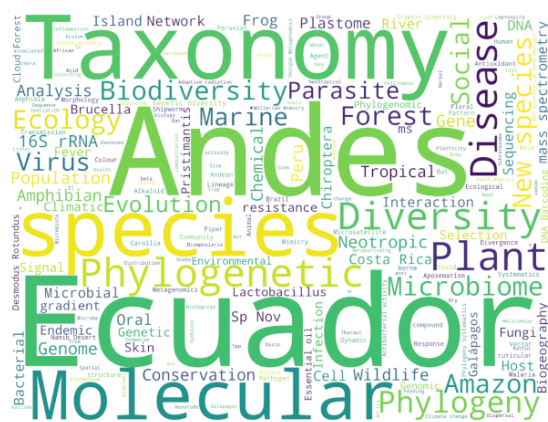


Figure 8: The topics were assigned to each journal according to the journal scope and name. A total of 456 articles published in 148 journals were used.

a) Article's keywords



b) Article's MeSH

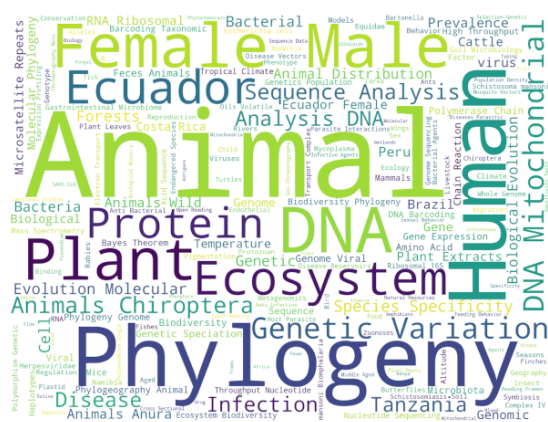


Figure 9: Word cloud representation of 1,631 keywords extracted from 456 research articles (a), and 2,657 Medical Subject Headings (MeSH) descriptors extracted from 256 research articles (b), in the database. Not all articles had MeSH descriptors. For reference, the keyword 'Ecuador' in (a) was mentioned 21 times and the word 'Animal' in (b) was present in MeSH descriptors 256 times.

4.3 Recommendations for more effective information collection at the global level

The prototype and methodology for assessing several non-monetary benefits at the global level could be further improved by complementary efforts by the ABS CNAs, the scientific

community in partnership with journal editors and the ABS-CH.

4.3.1 Establish the obligation for users to cite IRCCs or ABS permits in scientific publications

In the non-monetary benefit database just 39 research articles cite IRCCs, which is a small number considering the amount of IRCCs and research articles available. Besides that, researchers most often cite national ABS permit codes (not standardized across countries) rather than the standardized IRCC codes. These two facts make it more challenging to link research and development results (research articles) to ABS agreements at the global level and the further report of the proposed types of non-monetary benefits (see Table 5) and section section 3.5). To improve the citation of IRCCs in research articles, three steps are necessary: 1. countries must publish their ABS permits in the ABS-CH, which generate IRCCs codes that should be made available to researchers to be cited; 2. In the interim, countries should provide their national ABS permit codes in order to further optimize the methodology described in this chapter; and 3. countries could include in the MAT the user's obligation to cite the IRCCs (or ABS permits codes in case IRCCs are not available) in all the publications related to the authorized utilization of GR or aTK.

4.3.2 Standardize citation practices

Our dataset shows that researchers cite their ABS agreements in different locations throughout their publication. 45.5% of the articles cited the ABS permit in the material and methods section whereas 25.5% cited their ABS permit in acknowledgments; the rest used a variety of sections (Figure 10). These varied locations make the automated detection and prediction of what is an ABS permit more difficult. ABS citation practices need to become more standardized and leadership from scientific journals is needed here. Improvement in ABS permit citation will make it easier to quantify non-monetary benefits from the utilization of GRs and aTK.

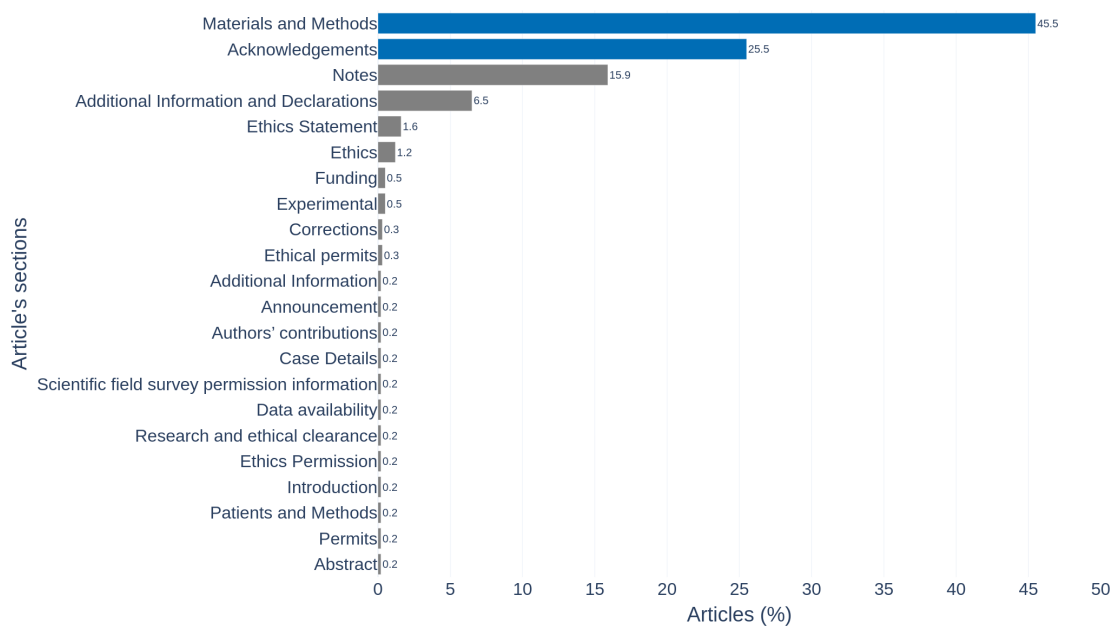


Figure 10: Percentage of articles using different articles sections to cite ABS agreement obtained by the corresponding research. The two most used sections are highlighted in blue.

4.3.3 Develop benefit-sharing related policies

Not all scientists that have obtained an ABS permit routinely cite this in their research results. And, in some cases, scientists might not have followed ABS procedures and national legislation. To this end, some journals have put in place benefit-sharing-related policies such as the journals *PLoS*³, *Plants*⁴, and *Molecular Ecology* and *Molecular Ecology Resources* which require authors to certify they have followed ABS laws per the CBD and the NP as a condition for publication [29]. These journals also encourage authors to include a new section in their article called “Data Accessibility and Benefit-Sharing” to disclose benefits shared. These initiatives contribute to solving the problem of invisibility of non-monetary benefit-sharing, but there is still work to do towards the standardization of best practices for ABS in scientific publications and thus a current limitation to this global method.

³Best Practices in Research Reporting, accessed 22 of January 2024, <https://journals.plos.org/plosntds/s/best-practices-in-research-reporting>

⁴Research Involving Plants, accessed 22 of January 2024, <https://www.mdpi.com/journal/plants/instructions>

4.4 A new standardized global reporting system for users to self-report benefits shared

Another complementary approach for benefit-sharing reporting would be to develop a global reporting system for non-monetary benefits. This would be a new system which would gather information in a centralized manner that can subsequently be disaggregated by country. This reporting tool would enable users of GR and aTK to report on the benefits shared in their work under an ABS agreement. A global standardized repository for non-monetary benefit-sharing reports would streamline the process of gathering data on non-monetary benefits and enable a linkage between an IRCC, a benefit-sharing report and a publication further strengthening the interconnectivity of the ABS ecosystem.

Such a system would decrease the national burden on ABS reporting while still providing for disaggregation by country and automated notifications of new non-monetary benefits back to provider countries. It would also be an efficient use of financial resources because it involves the development of a single database instead of one per country. Nevertheless, such an approach would require the development of a common framework and methodology on how to report on non-monetary benefits. Importantly, the final determination of whether the benefit-sharing was sufficient and fulfills the agreed conditions under the MAT would still remain with the providing Party.

User reporting of benefits shared can also be seen as a chance to create data on benefit sharing and increase the responsibility for users to provide benefits that align with the overarching CBD principle that ABS should contribute to conservation and sustainable use of biodiversity. Global reporting by users could also be linked with the Global Reporting standard (GRI)⁵. GRI Reporting Standard 101 on Biodiversity is a framework that guides organizations in reporting their impacts on biodiversity. The standard offers guidance on disclosing biodiversity-related information in sustainability reports. GRI reporting requires disclosure of information on the organization's principles and activities. Voluntary user reporting as described under the GRI standards for biodiversity, could be used as a tool to compile benefits shared and develop a centralized platform.

4.5 Key findings

- We propose here a new global methodology to quantify non-monetary benefit-sharing that connects ABS permits with scientific publications. The database prototype can quantify three types of non-monetary benefits and will continue to be developed until 2025 through project funding. The Leibniz Institute DSMZ can continue to

⁵<https://www.globalreporting.org/news/news-center/transparency-standard-to-inform-global-response-to-biodiversity-crisis/>

develop this methodology and provide data to countries, subject to the availability of funds.

- Global approaches for several types of non-monetary benefit-sharing would free up capacities for national reports to focus on monetary benefits and other types of non-monetary benefits.
- Efforts from both providers and users will improve the ability to assess non-monetary benefits from the utilization of GR and aTK:
 - ABS NFPs should increase their use of IRCCs in order to robustly link research results with IRCCs codes which is an obligation under the NP. In the interim, they should provide their national permit codes in order to further optimize the methodology described here. Besides that, countries could include in the MAT the user's obligation to cite the IRCCs (or ABS permits codes in case IRCCs are not available) in all the publications related to the authorized utilization of GR or aTK.
 - Scientific practices for citing IRCCs and/or ABS permits codes in scientific publications need to be better standardized. Scientific journals and the research community should play a leadership role here.
- A new centralized reporting database for users to report on benefits shared would provide a complementary global approach to capturing non-monetary benefits. All data collected at the global level would subsequently be disaggregated and made available to countries for their use in their national report.
- These approaches and the prototype can be further expanded into other kinds of non-monetary benefit-sharing such as joint intellectual property rights using other data types and databases as well as potentially useful for DSI.

4.6 Indicator recommendations for global reporting on bilateral benefit-sharing

Monetary benefits

- At the national level. See chapter 3.

Non-monetary benefits

- Proposed headline indicator: Non-monetary benefits arising from applicable internationally agreed ABS instruments.

Regarding non-monetary benefits, possible types of non-monetary benefits to be reported were included for the five categories analyzed in Table 5:

Sharing of information, research results

- Number of research and development results arising from ABS instruments

- Number of scientific publications relevant to conservation, sustainable use, food security, and public health arising from ABS instruments.
- Custodian: Leibniz Institute DSMZ will collect information at the global level; information will be disaggregated and made available to countries for their use in national reports.
- Methodology: As described above (Section 4.1.1-4.1.4)
- Possible disaggregation: (country, aTK vs GR, beneficiaries (IPLC, women, youth))

Scientific collaboration and/or joint publications

- Number of joint scientific publications arising from ABS instruments with authors from the provider country, where appropriate.
- Custodian: Leibniz Institute DSMZ will collect information at the global level; information will be disaggregated and made available to countries for their use in national reports.
- Methodology: As described above (subsection 4.1.1-subsection 4.1.4)
- Possible disaggregation: country, female co-authors

Capacity-building, capacity development and/or trainings

- At the national level. See chapter 3.

Access to and transfer of technology

- At the national level. See chapter 3.
- Note: in theory, the same methods applied here could also be used to assess joint intellectual property rights from patent applications. However, these methods have not been tested and it remains unknown the extent to which ABS permits are mentioned in patent applications.

Sustainable development benefits

- At the national level. See chapter 3.



5. Global reporting on benefit-sharing from the ITPGRFA to the KMGBF

Davide Faggionato, Servane Baufumé & Sélim Louafi

The ITPGRFA establishes a framework for the conservation and sustainable use of plant genetic resources for food and agriculture [3].

The MLS of Access and Benefit-Sharing, which is at the heart of the ITPGRFA, operates under Articles 10-13 [3]. It serves as a global repository for key plant GRs, which are jointly managed by participating nations. The system provides access to these resources for agricultural research and breeding, with the obligation to share the resulting benefits. It covers 64 crops and forages listed in Annex I of the ITPGRFA [3], which account for more than 80% of human caloric intake from plants. The MLS promotes wider use, fosters transparent exchange of material, supports conservation and encourages cooperation between regions with similar climates. Ideally the MLS will facilitate accelerated agricultural research, leading to the development of high-yielding, nutritious crop varieties adapted to changing climatic conditions [29].

One of the key principles under the MLS of the ITPGRFA is the fair and equitable sharing of the benefits arising from the use of these resources, and Article 13 provides for various forms of benefit-sharing, both monetary and non-monetary, arising from commercialization, utilization, or the conservation of materials accessed through its MLS. The Contracting Parties have unanimously agreed that these benefits should primarily accrue to farmers in developing countries who contribute to the conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA).

This chapter presents how monetary benefit sharing and the fund under the MLS are managed by the ITPGRFA and summarizes an analysis done by Sélim Louafi and Servane

Baufumé, from the French Agricultural Research Centre for International Development (CIRAD) for the ITPGRFA Secretariat, entitled "Updated draft Methodology for Measuring Non-monetary Benefit-sharing" presented at the 8th meeting of the Standing Committee on Funding Strategy and Resource Mobilization of the ITPGRFA [4]. In its last meeting in November 2023, the ITPGRFA Governing Body requested the funding committee to devote close attention to the testing of these draft methodologies for measuring non-monetary benefit-sharing in the 2024-2025 biennium [5].

5.1 Monetary benefit-sharing within the ITPGRFA

Monetary benefits under the ITPGRFA are centralized in the benefit-sharing fund of the MLS, which plays a central role in the funding strategy of the ITPGRFA. The fund receives monetary contributions from developed countries and also from companies. Any entity that commercializes a new crop variety containing traits derived from plant genetic material obtained from the MLS is encouraged or obliged to contribute an appropriate portion of the commercial profits to the benefit-sharing fund. If the new variety is not made available for further research and breeding by others, for example because a breeder obtains a patent that restricts access, the breeder is obliged to pay into the benefit-sharing fund, according to Article 6.7 and Annex II of the ITPGRFA [3]. The percentage of benefits to be paid into the benefit-sharing fund in such circumstances is specified in the Standard Material Transfer Agreement (SMTA) signed between the provider and the recipient of the original material from the MLS at the time of its transfer [3, 25]. Since its establishment in 2009, the ITPGRFA benefit-sharing fund has invested 26 million USD in 81 projects in 67 developing countries¹. During 2023, the Standing Committee on the Funding Strategy and Resource Mobilization (the Funding Committee) approved a new portfolio of 28 projects for funding in the Fifth Call for Proposals of the Benefit-sharing Fund (BSF-5) for a value of almost USD 11 million to be invested globally [22].

5.2 Non-monetary benefit-sharing within the ITPGRFA

Since the ITPGRFA's entry into force in 2004, the components of NMBS were immediately placed under analysis and scrutiny [30, 31, 6]. Now, concurrent with the recent deliberations on the ITPGRFA Funding Strategy and the need for new NMBS indicators under the CBD, the study by Louafi and Baufumé' [4] gives tangibility to the framing and the mechanisms for monitoring and quantification of NMBS derived by the use of GR.

The methodology can theoretically be used at different levels. It is currently intended for organizations involved in PGRFA use and exchange for self-assessment, enhancing

¹Complete information on the projects supported by the fund can be obtained at <https://www.fao.org/plant-treaty/areas-of-work/benefit-sharing-fund/projects-funded/en/>

awareness and institutional learning towards improved NMBS practices. Countries could also use the tool as a basis to develop tailored surveys aiming to report on and monitor practices at the national level. In this case, additional categories will be necessary to address administrative, regulatory, or policy measures contributing to NMBS at the national level, such as support to institutions with specific global collaboration mandates, development of funding schemes or collaborative research mechanisms promoting sustainable agriculture and benefit sharing. Finally, at the global level, adoption by the Governing Body of a standardized version of this methodology could facilitate uniform reporting under the ITPGRFA, aiding global policy reviews by the ITPGRFA Secretariat, thus going beyond the mere indication of “best practices”.

5.2.1 Overarching non-monetary benefit sharing categories under the ITPGRFA

In addition to facilitated access to PGRFA, the MLS provides a framework for sharing benefits arising from the use (in research, breeding or conservation) of the pooled resources. NMBS plays a crucial role in motivating the supply of GRs to the MLS, thereby fostering broader utilization of pooled genetic materials. In particular, NMBS stands as a linchpin in achieving a delicate equilibrium between innovation, openness, and equity.

Article 13.2 of the ITPGRFA categorizes NMBS into three main groups:

- (a) Exchange of information on PGRFA, including inventories, technological knowledge and research results,
- (b) Access to and dissemination of technologies for the conservation and sustainable use of PGRFA within the multilateral system,
- (c) Capacity-building initiatives in developing countries, particularly in the areas of PGRFA conservation and sustainable use, including the establishment and strengthening of relevant institutions and the conduct of scientific research.

Use of PGRFA should ideally benefit several actors along the value chain of research and breeding. However, challenges arise from the unequal distribution of NMBS among various stakeholders and countries, in particular to farmers who, under the ITPGRFA, should be among the primary recipients of the benefits arising from the development of technologies and the provision of GR (Articles 12 and 13, [3]).

5.2.2 Proposed methodology and identification of the actors subjected to the analysis

The ITPGRFA Funding Committee agreed that prioritizing the monitoring of NMBS was a critical step toward the development of a mature benefit-sharing system. The Funding Committee identified two considerations for monitoring NMBS: 1) technologies and

capacities shared between countries and organizations should be considered integral "in-kind" contributions to the implementation of the Treaty and part of the overall funding of the Treaty; 2) understanding the extent and manner in which technologies, capacities and other benefits are shared enables the Funding Committee and the Governing Body to identify areas of existing benefit-sharing and those requiring further investment, thereby guiding the future funding strategy of the Treaty. Consequently, measuring NMBS under the Funding Strategy enables monitoring of countries' compliance with Article 13 of the Treaty and promotes strategic development of NMBS activities and the Funding Strategy.

An empirical methodological framework for structuring and describing NMBS practices was developed. To best represent the synergistic and the interrelated dimension of the processes occurring "on the field", this empirical framework is based on a multiscale approach with a bottom-up orientation where the three main concerned levels start from *single projects* towards *institution/organization* to *country/government* (Figure 11A).

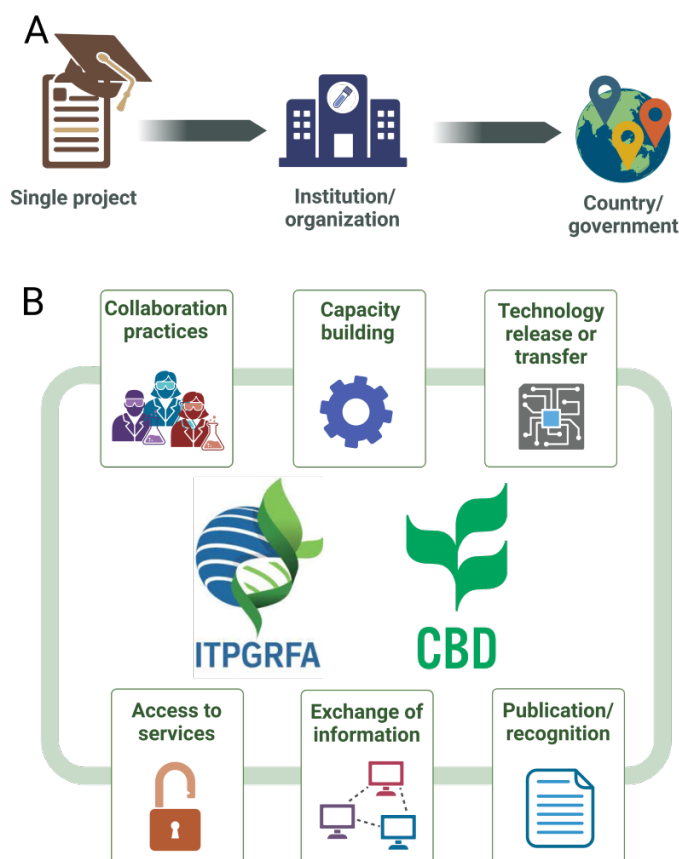


Figure 11: *ITPGRFA approach and dimensions of the empirical methodological framework for structuring and describing non-monetary benefit-sharing practices. A. Bottom-up approach of the three suggested levels of analysis: single projects, institution/organization, country/government. B. Overview of the six synergistically interconnected dimensions of NMBS proposed to define the monitoring framework, the nature of the six dimensions cuts across both the ITPGRFA and CBD. Infographic generated with BioRender.com.*

According to the methodology's terminology, "PGRFA providers" refers to organizations engaged in providing PGRFA utilized in research and development (R&D) activities; "PGRFA users" are organizations that obtain these resources from PGRFA providers and use them in R&D activities. And the beneficiaries of benefit-sharing measures may either be:

- Stakeholders from the providing country, including "PGRFA providers", to whom PGRFA users can directly provide benefit-sharing measures.
- Stakeholders that PGRFA users may choose to involve in the R&D process to promote benefit-sharing.

5.2.3 Parameterization of dimensions, categories, metrics and indicators

As the institutions involved in the MLS globally are very diverse and with different mandates and areas of expertise, the study proposes to provide a general overview of the organization's profile that includes particular features which may influence its NMBS strategy and practices:

- **Mandate (Global vs National):** Organization's explicit mandate in relation to NMBS, e.g. focus on international collaborations (global mandate) vs. national engagement.
- **Focus on PGRFA Conservation and Characterization:** Whether the organization has a specific mandate related to the conservation and characterization of PGRFA.
- **Primary Goal Orientation:** Institution's varying aims and priorities, encompassing market-oriented, scientific, technological, service provision, development, training, education, capacity-building, policy-oriented, and community building goals.
- **Partners (Implementing Stakeholders):** Stakeholders with whom the organization collaborates in its projects or activities. This category can be further sub-divided with additional granularity based on the type of institution under consideration (e.g., research organization, nongovernmental organization, farmer, etc.) [30].
- **Geographical scope:** whether the organization's interventions target a specific geographical area.
- **Funding sources:** Main type(s) of funding the organization relies on for its R&D interventions (market, governmental, public research funding bodies, . . .)
- **PGRFA used:** frequency of exchange/use of PGRFA by the organizations (i.e. Occasional; Frequent; Intensive).

Following a general overview of the organization, the proposed framework unfolds with the description of the organization's NMBS practices. It is proposed to break down the organization's NMBS practices into categories, each of them with indicators, measurement

scale (binary (yes/no) or based on ordinal variables, such as low, medium, high) and possible sources to inform the indicators [4]. The analysis entails monitoring the following 6 dimensions of NMBS (Figure 11B):

A. Collaboration practices

This dimension aims to evaluate the overarching mechanisms established at the organizational level to foster collaboration with relevant stakeholders, cultivate fair partnerships, and establish an overall environment conducive to benefit-sharing. It is subdivided into two categories, each focusing on specific facets of collaboration processes:

A1. Commitment to collaboration with relevant stakeholders and operational translation Existence of practices where regular PGRFA use or exchange serves as an opportunity basis to establish a more comprehensive cooperation framework between providers and users, involving activities like R&D projects, collaborative work platforms, etc.

A2. Monitoring mechanisms Evaluation of the degree to which organizations possess monitoring and assessment mechanisms for their NMBS practices, emphasizing the importance of transparency.

B. Capacity-building

It is proposed to differentiate capacity-building practices on technological or scientific aspects from those on institutional aspects, as each level offers unique benefits with varying impacts on institutions and countries.

B1. Capacity-building on technological or scientific aspects

B2. Organizational capacity-building Such as training sessions addressing policy or regulatory aspects, Workshops addressing research management, financial and legal management, governance principles, equity in partnerships, impact pathways, monitoring and evaluation.

C. Technology release or transfer

Under this dimension, two relevant categories are proposed. For each of these two categories, indicators are suggested, in order to ultimately measure, on a low to high scale, the benefit potential of each of these technology transfer practices.

C1. Co-development and co-ownership of technologies and outputs

C2. Access to a technology (or other strategic research outputs) and associated know-how). The assessment of technology transfers is suggested to be graded from low to high by differentiating restrictive technology transfers (limiting the technology transfer to specific geographic areas or applications and/or limiting subsequent transfers) from facilitated technology transfers, providing unrestricted access to an innovation, allowing free use and subsequent transfer, and ensuring effective adoption of the technology through knowledge

transfer, expertise, and training.

D. Access to services

Access to services significantly contributes to the development of sustainable research and development ecosystems especially in less-developed countries.

D1. PGRFA characterization services (i.e. genotyping or phenotyping services)

D2. PGRFA conservation services (i.e. storage or regeneration services)

D3. Access to PGRFA collections (gene banks)

E. Exchange of information

These categories focus on assessing both the significance and strategic relevance of the communicated information/data, as well as the communication process quality and its impact on relevant stakeholders.

E1. Participative governance of data

E2. Communication of strategic data and associated know-how

E3. Public release of information and research results

F. Publication/recognition

F1. Co-production of publications

F2. Recognition of the origin of the genetic resources used

5.2.4 Future steps and conclusions

The draft methodology, while comprehensive, acknowledges the need for further refinement through empirical testing. Organizations and countries under the ITPGRFA are encouraged to test and provide feedback, supported by the request of the ITPGRFA Governing Body to the funding committee to devote close attention to the testing of methodologies for measuring NMBS in the 2024-2025 biennium [5]. The study also underscores the interconnectedness of organizations within larger systems, acknowledging the influence of economic, political, scientific, and educational systems on NMBS practices. It suggests possible future steps, including a testing phase involving institutions and countries reporting on their NMBS practices through an online survey. Additionally, it proposes an expansion of the methodology to consider mechanisms and practices at the level of organizations and countries receiving NMBS. Finally, the study stresses the potential interest of quantifying NMBS into monetary terms, recognizing, however, the complexity and potential bias involved across the different NMBS dimensions.

Developing specific methods for approximative quantification and ensuring their adoption by reporting organizations are essential steps in addressing the intricate issue of financial evaluation of NMBS.

5.3 Key findings

- Few practical examples of explicit guidelines exist in the international community for defining, managing, monitoring, and sharing NMBS.
- A lack of clear guidelines and in some cases, terminology, leads to confusion and uncertainty in the assessment and recognition of NMBS by users and providers of GR.
- Beyond a best practices approach, unraveling real practices in research and development organizations and projects sheds light into the nature and possible impacts of NMBS practices at the level of agricultural stakeholders.
- Some initial convergence in NMBS monitoring categories is emerging, such as between ITPGRFA and NP. The NP monitoring and reporting document lists under item 45: "sharing of information, research results", "scientific collaboration and/or joint publications", "access to and transfer of technology", "capacity building, capacity development and/or training", "sustainable development benefits (such as improved, food security, livelihood security, etc.)", which overlap with the 6 dimensions of NMBS proposed by this methodology (Figure 11B).
- Collaboration practices appears as a new important category to describe the role of the different stakeholders in collaborative R&D and its influence in the sharing of the benefits arising from the use of the genetic resources.
- Existing overlap in the NMBS practices related to different ABS international instruments offers the potential to establish harmonized, cross-treaty monitoring tools, which would produce synergies in NMBS management and allow high resource efficiency at various levels (organizations, states. . .).

5.4 Indicator recommendations for global reporting from the ITPGRFA to the KMGBF

The framework proposed for ITPGRFA, with the identification of the six dimensions under discussion and the formalization of a qualitative/quantitative NMBS analysis, provides a good reference for the assessment and quantification of NMBS under other ABS instruments. The six dimensions took into account the list of NMBS included in the annex of the NP and, therefore, coincide or overlap with the 5 categories proposed in this study for the CBD. The main differences between the two proposals are that i) one of the categories proposed by this study to the CBD (Scientific collaboration and/or joint publications) appears divided into two categories for the ITPGRFA, which should not be an issue as information could be merged, and ii) the apparent discrepancy between the general category of "Sustainable development benefits" and the more concrete one under

the ITPGRFA on “Access to services”.

Monetary benefits

- Proposed Indicator: Monetary benefits received in accordance with the ITPGRFA
- Custodian: ITPGRFA Secretariat
- Methodology: To be determined by the ITPGRFA
- Possible disaggregation: To be determined by the ITPGRFA

Non-monetary benefits

- Proposed Indicator: Non-monetary benefits arising from applicable internationally agreed ABS instruments

Regarding non-monetary benefits, possible types of non-monetary benefits to be reported were included for the five categories analyzed in Table 6.

The indicators and the way the ITPGRFA will gather information on NMBS is currently being discussed under the ITPGRFA and they will have to be decided by the Governing Body in harmony with the decision adopted by the CBD COP on indicators. The comparison between the six categories under discussion at the ITPGRFA, as presented in point 5.2, and the five categories presented in chapter 3 for the CBD would be the following:

Table 8: *Comparison of proposed non-monetary benefit categories of the CBD vs. ITPGRFA*

| CBD non-monetary benefit sharing proposed category | ITPGRFA benefit sharing proposed category |
|---|--|
| Sharing of information, research results | Exchange of information |
| Scientific collaboration and/or joint publications | Collaboration practices Publication/recognition |
| Capacity-building, capacity development and/or trainings | Capacity-building |
| Access to and transfer of technology | Technology release or transfer |
| Sustainable development benefits | Access to services |



6. Global reporting on benefit-sharing from new ABS instruments

Débora S. Raposo & Pablo Orozco

6.1 Introduction

This chapter addresses two new biodiversity-related benefit-sharing mechanisms currently under development and recently adopted: the CBD DSI multilateral mechanism on benefit-sharing and the BBNJ Agreement. The chapter does not prejudge that those international instruments, in particular the BBNJ Agreement, will need to take their own decisions through their governing bodies on whether and how to collaborate in the implementation of the KMGBF and its monitoring framework, but provides for possible ways and ideas to approach the implementation of ABS indicators. Equally, the chapter does not prejudge that other ABS-related instruments, existing, such as the Pandemic Influenza Preparedness Framework under the WHO, or currently under negotiation, such as the international instrument on pandemic prevention, preparedness and response at the WHO or the international legal instrument relating to intellectual property, genetic resources and traditional knowledge associated with genetic resources at the WIPO, could provide, in the future, information on benefit-sharing. That will also have to be decided by their corresponding governing bodies in collaboration with the CBD.

6.2 CBD DSI multilateral mechanism on benefit-sharing

At COP 15 in December 2022, Parties agreed that the benefits from the use of DSI should be shared fairly and equitably and established a multilateral mechanism for benefit-sharing

from the use of DSI, including a global fund, as part of the KMGBF [12]. The decision established a process, through an Ad-Hoc Open-Ended Working Group on DSI (WG-DSI), to operationalize that multilateral mechanism at COP-16, in particular the elements listed in the annex of the decision, as well as commissioned several complementary studies. The WG-DSI to-date has not actively considered proposals for possible indicators on benefit-sharing from the use of DSI towards the KMGBF, although DSI is already explicitly mentioned in both Goal C and Target 13 indicating a clear relationship between the benefit-sharing from the use of DSI and the need for indicators.

6.2.1 Current status of the DSI negotiations concerning benefit-sharing

The first meeting of the WG-DSI was held in Geneva from 14 to 18 November 2023. To help structuring the discussion, the CBD Secretariat grouped the open issues from the COP 15 DSI decision into five groups, which are:

- A Contributions to the fund
- B Disbursement of the funds
- C Non-monetary benefit-sharing
- D Governance
- E Relation to other approaches and systems

Even though it is early in the negotiations, amongst the points of agreement between the Parties contained in the official report [23], is that at least part of the disbursement of funds should be directed toward conservation and sustainable use of genetic resources, and IPLCs. In the realm of non-monetary benefit-sharing, the focus shifts to capacity-building, technical and scientific cooperation, and technology transfer. Notably, there is a recognition of the need to bridge capacity gaps, especially in the generation, access, use, analysis, and storage of DSI, aiming to establish equity between developed and developing nations.

Given that the discussions on benefit-sharing from DSI are still ongoing, the following reflects on the current status of issues as last discussed by the WG-DSI and collects ideas regarding indicators from experts and informal discussions without prejudging the outcomes of the negotiations. Parties will need to consider the issue of indicators for measuring benefit-sharing from DSI once the modalities of the mechanism are adopted.

6.2.2 Possible indicators for DSI monetary benefit-sharing

While the multilateral benefit-sharing mechanism is still under development, and it is premature to assess possible outcomes of the negotiation process, there are nevertheless a range of opportunities to develop indicators to quantify benefit-sharing from DSI. For example, in terms of monetary benefit-sharing, a straightforward indicator could be the total and/or annual contributions to the fund, similarly to what is already done under the ITPGRFA. These data could be aggregated together with monetary benefit sharing

information from the NP bilateral system or other multilateral systems.

Other potential indicators for disbursement of the funds of the DSI benefit-sharing mechanism are less obvious at this point in the negotiation. For instance, whether the funding should be disbursed according to the level of development of the country, or how funds should be accessed by IPLCs, are points of discussion for which there is not consensus yet. Nevertheless, the amount of monetary benefits disbursed and the subsequent disaggregation of the funds by recipient and/or towards the purpose of conservation and sustainable use seem relatively useful indicators that could be adopted once the mechanism is established.

6.2.3 Possible indicators for DSI non-monetary benefit sharing

Similarly, it is premature to assume the outcomes of negotiations on how NMBS for/from DSI will unfold. However, during the last meeting of the WG-DSI, potential convergence is observed, for instance, in the identified criteria for who should be the recipients of such benefits. Non-monetary benefits could address the need for additional capacity to support conservation and sustainable use, address capacity gaps, and improve ability to generate, access, use, analyze, and store DSI. The WG-DSI in its first meeting's report also recognizes the self-identified needs of IPLCs, women, and youth, and the needs of national agencies and institutions, including research and academic entities. The document recognizes various ways of non-monetary benefits are currently being shared and advocates for future efforts to consider lessons learned from these experiences.

Parties may also wish to consider non-monetary benefits through different lenses: money used from the global DSI fund, supplemental overseas development aid targeted towards DSI-related activities, and non-monetary benefits that arise directly from the use of DSI and result in public good outcomes.

Parties have not discussed possible indicators for NMBS from DSI and it is premature at this stage to pre-determine possible indicators to measure them. Nevertheless, the following list reflects some ideas that have arisen in expert interviews and informal discussions that could be reported under the 5 categories for NMB described in chapter 3. Parties might also find the list of DSI-related benefits agreed to under BBNJ (subsection 6.3.2) complimentary.

1. **Sharing of information, DSI research results.** In order to assess how DSI is used in research and development, and to ensure compatibility and thus aggregation with the proposed global types of non-monetary benefits to be reported proposed in chapter 3, DSI indicators could be developed based on scientific publications and relevance to conservation and sustainable use and/or specific priority research areas. Possible indicators could be:

- a Number of DSI records cited in publications disaggregated by country of origin of the GR from which DSI was generated and/or country of authors in the

publication.

- b Number of DSI records used in publications for high-priority research categories: public health (pathogens), food security (crops and livestock), conservation (using keywords and/or IUCN Red List) and sustainable use of biodiversity.

DSI produced from GR sourced from IPLC-governed areas. Although still not possible, it would be conceivable to label DSI as being sourced from GR accessed from an IPLC-governed area, which could be a new metadata tag offered by public DSI databases. Possible indicators could be:

- c Number of DSI associated with a biocultural protocol
- d Number of DSI with an IPLC metadata provenance tag

DSI available via open access. Given that many DSI generated by researchers are uploaded to public databases, and that geographical provenance of the GR often accompanies the submission of sequence data, it would be possible to measure the amount of access to GR from provider countries that resulted in DSI on an annual basis. This indicator data could potentially be used to recognize (or reward) countries that have given access to GRs that led to public DSI [31] and/or to identify the GR source jurisdiction. Possible indicators could be:

- e Number of DSI available in open access databases disaggregated by country of origin of the GR from which DSI was generated.
- f Number of DSI available in open access databases disaggregated by relevant internationally agreed ABS instruments (CBD, ITPGRFA, BBNJ, or other benefit-sharing instruments).

2. **Scientific collaboration and/or joint publications.** DSI indicators could be also developed based on scientific publications and co-authorships. Using methodology similar to that described in chapter 4, scientific co-authorship, a proxy for international collaboration, can be used to assess whether researchers in the country-of-origin of the GR from which DSI was generated were involved. A possible indicator could be:

- a Number of joint publications: publications with authors on the publication that correspond with the country-of-origin of the GR from which DSI was generated.

3. **Access to and transfer of technology. DSI infrastructure-related indicators.** Data on DSI-related infrastructure could inform Parties on how to create a more equal playing field by expanding the geographical regions where DSI is hosted and made available to the world. These indicators would contribute to a comprehensive understanding of the DSI infrastructure ecosystem. Possible indicators could be:

- a Location of DSI databases and their funders

- b Volume of data interconnectivity and interoperability of DSI databases
- 4. **Capacity development to produce and use DSI.** Even though access to DSI is open and free, the capacity to use and analyze the sequences is uneven across countries. Building capacities in the scientific community in developing countries, will enable more researchers to effectively use the global DSI infrastructure and contribute to local biodiversity conservation and sustainable use issues, as well as food security and health. Possible indicators aligned with those of KMGBF target 20 could be developed. Additionally, geographical (anonymized) location of users could be informative:
 - a Number of users of public DSI databases disaggregated by country (based on anonymous IP addresses)
- 5. **Sustainable development benefits.** Research involving DSI also can contribute to sustainable development. Both knowledge and new products generated using DSI, can contribute to local economies, global health, food security and other SDGs. If a global reporting mechanism is created, users could report on whether their projects utilizing DSI contributes to sustainable development. A possible indicator could be:
 - a Number of projects contributing to sustainable development.

6.3 ABS system for marine genetic resources and DSI under the BBNJ Agreement

On the 19th of June 2023, the Intergovernmental Conference convened by the UN General Assembly in 2017 adopted the BBNJ Agreement [6]. The objective of this legally binding instrument is to ensure the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction through the effective implementation of the main following measures: 1) Marine Genetic Resource(s) (MGR), including the fair and equitable sharing of benefits; 2) Area-based management, including marine protected areas; 3) Environmental impact assessments; and 4) Capacity-building and the transfer of marine technology. In this study, only measures related to MGR benefit-sharing will be covered. As of the writing of this study two countries have ratified (Palau and Chile) and 87 States and the European Union have signed the BBNJ Agreement, thereby expressing their intent to ratify the Agreement¹. It will enter into force 120 days after ratification by a minimum of 60 countries.

The BBNJ Agreement establishes that “activities with respect to MGR and DSI-MGR of areas beyond national jurisdiction are in the interests of all States and for the benefit of all humanity, particularly for the benefit of advancing the scientific knowledge of humanity

¹as of April 2, 2024 https://treaties.un.org/doc/Treaties/2023/06/202306202004-2820PM/Ch_XXI_10.pdf

and promoting the conservation and sustainable use of marine biological diversity, taking into particular consideration the interests and needs of developing States” (Art. 11.6). Consequently, “no State shall claim or exercise sovereignty or sovereign rights over MGR of areas beyond national jurisdiction” (Art. 11.4), although the rights and interests of coastal states should be duly respected and taken into account.

Access to the traditional knowledge associated with MGR in areas beyond national jurisdiction that is held by IPLCs is subject to the FPIC or approval and involvement, and the negotiation of MAT with those IPLCs (Art. 13).

6.3.1 Access under the BBNJ Agreement: The Clearing-House Notification Mechanism

The BBNJ agreement will monitor access and use of MGR and MGR-DSI through a clearing-house notification system and will establish a financial mechanism and a special fund to distribute benefits. The Clearing-House Mechanism (of the BBNJ Agreement) (CHM) is set up to serve as a centralized platform that allows Parties to access, provide and disseminate information with regard to all activities within the scope of the agreement. A notification must be sent to the CHM when MGR are collected and follow up submissions are required upon utilization. For instance, the CHM must be notified when MGR or DSI of MGR are used in publications or at the point of commercialization.

The CHM notification system is triggered by an initial pre-cruise notification that details who, where, when, how and for what purposes the collection of MGR will take place. It must further detail any potential opportunities for scientists of all states to be involved or associated with the project, any technical assistance needed and include a data management plan. (Art. 12.2) [6]. This pre-notification will also automatically generate a BBNJ standardized batch identifier -BBNJ Identifier- that will be used during the cruise to distinguish all the MGRs and DSI for MGRs obtained and generated during the notified in situ collection (Art. 12.3).

Data generated by further downstream activities associated with the original samples and generated DSI will then be linked to the original BBNJ identifier. Users should also submit key information on storage, such as where the MGR samples are held, and the databases where the DSI are or will be deposited. Finally, the notifications must provide data on the utilization of the obtained MGRs and DSI of MGRs, such as any resulting product development and/or commercialization. (Articles 12.3, 12.4, 12.5, 12.6, 12.7).

The agreement singles out the cases where MGR and DSI for MGR would be subject to different modes of utilization, including commercial uses. Parties are obligated to ensure information on the result of utilization (as defined by the treaty in Article 1) is shared with the CHM and linked to the relevant BBNJ identifier. This obligation covers the results of

utilization such as being cited in associated publications, patents granted, and products developed. In regard to the latter, Parties must ensure that once products are marketed, users must submit information on sales and any further development that might be relevant for the CHM. (Art 12.8).

Overall, the CHM notification system ensures a high level of transparency and institutes an information collection method that may help establish indicators on BBNJ access and utilization.

6.3.2 Monetary benefit-sharing under the BBNJ Agreement: A New Financial Mechanism and Fund

In terms of benefit-sharing, the agreement makes a clear distinction between monetary and non-monetary benefit-sharing. For now, monetary benefit-sharing is to be provided by an annual contribution from the developed state Parties and allocated to a special fund which will be established as part of the financial mechanism of the agreement. The rate of contributions will be 50% of a Party's assessed annual contribution to the budget and will begin after the entry into force of the agreement (Art. 52), until the COP decides on the modalities for the sharing of monetary benefits from the utilization of MGR and DSI-MGR, based on the recommendations of the benefit-sharing committee. The modalities may include milestone payments, payments or contributions related to commercialization of products or revenue from sales of products, a tiered fee, and leaves an option for other forms of distribution as decided by the Parties (Art. 14.7).

It is explicitly noted that future modalities should be mutually supportive of and adaptable to other ABS instruments. In this regard, Parties to the BBNJ Agreement may decide to report on the monetary benefits shared through the above-mentioned special fund to the CBD Secretariat to be aggregated to the headline indicator on monetary benefits for Goal C and Target 13 of the KMGBF.

6.3.3 Non-monetary benefit-sharing under the BBNJ Agreement

The BBNJ Agreement contains a non-exhaustive list of non-monetary benefits (Art. 14.2 a-g) including:

- Access to MGR samples and sample collections;
- Access to DSI-MGR;
- Open access to findable, accessible, interoperable and reusable (FAIR) scientific data;
- The information contained in all notifications, along with the BBNJ identifiers, to the CHM in publicly searchable and accessible forms;
- Transfer of marine technology

- Capacity building; and
- Increased technical and scientific cooperation, in particular with scientists from and scientific institutions in developing States.

Parties to the BBNJ Agreement may decide to report to the CBD Secretariat on the mentioned non-monetary benefits under the 5 categories described in chapter 3. The BBNJ Agreement further leaves open the possibility for other forms of non-monetary benefit-sharing, as determined by the COP and the Benefit-Sharing Committee (Art. 14.2 h).

6.3.4 Considerations for BBNJ indicators on ABS from marine genetic resources (MGR) and DSI of MGR

The BBNJ notification system seems to assure that the CHM will have a significant amount of data that can potentially be used to establish indicators on access, use and non-monetary benefit-sharing of MGR and the DSI of MGR. However, more information on implementation and on the financial mechanism seems to be needed to assess possible indicators to measure monetary benefits. The approach to monetary benefit indicators is significantly linked to the modalities of payment which are still to be determined by the COP based on the recommendations that will be prepared by the ABS Committee.

In terms of access, the pre-notification that generates the BBNJ identifier can be used to identify who will be accessing MGR as it requires the submission of details regarding the collectors and their collaborators (Art. 12). This information could indicate the country of origin of the vessel and operators as well as the private or public nature of the program and funders. The pre-notification can also provide information to set up indicators on the type of research to be conducted and the location where the MGRs will be obtained (Art. 12). Finally, the post-collection notification that identifies the repositories and databases that hold the MGRs collected and DSI for MGRs generated will allow the CHM to assess and measure the type of access provided.

In terms of benefits, the information to be submitted by users through the notification mechanism should provide relevant information to measure and monitor some of the non-monetary forms specifically considered by the treaty in its Article 14.2. However, measuring the extent to which the data received by the CHM can be used for indicators depends on if and when benefits are created and the implementation of the relevant provisions.

The CHM will only be able to measure benefits if they have been created at a point in time that can be captured by the required notifications as stated in the treaty. Without implementation details, only some non-monetary benefits seem to fall under this criterion.

For instance, access to MGRs and open access to DSI are considered to be forms of non-monetary benefits by the agreement. These benefits will be created once the MGR collected and the DSI on MGRs generated are deposited and stored in an open access collection or database. The CHM will be able to record and measure these benefits since the required post-collection notification will identify the repositories and databases storing both the collected MGRs and generated DSI for MGRs.

All Parties must ensure that the information on activities with respect to MGRs and DSI on MGR required by the treaty are duly notified to the CHM (Art. 12.1 BBNJ Treaty). The way Parties implement this obligation will determine the possible options for establishing indicators to measure ABS. Table 9 below shows how activities that trigger notifications can provide information that could be used for indicators on access, utilization and benefit-sharing, along with some issues needed to be determined on implementation.

Table 9: *Possible approaches to indicators based on the information received through notifications to the BBNJ Clearing-House.*

| Activity subject to Notification | Information shared through Notification | Is it possible to use for Indicators on Access and/or Benefit? | Comments for implementation |
|--|---|--|---|
| Notification 6 months prior to the collection in situ of MGRs (Art. 12) | <p>Art 12. 2.a) The nature and objectives under which the collection is carried out, including, as appropriate, any programme(s) of which it forms part.</p> <p>Art 12.2.b) The subject matter of the research or, if known, the MGRs to be targeted or collected, and the purposes for which such resources will be collected.</p> <p>Art.12.2.c) The geographical areas in which the collection is to be undertaken.</p> <p>(d) A summary of the method and means to be used for collection, including the name, tonnage, type and class of vessels, scientific equipment and/or study methods employed;</p> <p>(g) The name(s) of the sponsoring institution(s) and the person in charge of the project;</p> | <p>Yes, Indicators on Access</p> <p>Not relevant for benefit-sharing indicators.</p> | <p>The Clearing-House could use this information for indicators on the Parties that access MGR and the type of research to be carried out with MGRs</p> |

Table 9, continuation from the previous page

| Activity subject to Notification | Information shared through Notification | Is it possible to use for Indicators on Access and/or Benefit? | Comments for implementation |
|---|---|--|--|
| <p>Notification 6 months prior to the collection in situ of MGRs (Art. 12.2)</p> | <p>Art 12.2.e) Information concerning any other contributions to proposed major programmes.</p> <p>Art. 12.2.e) Information concerning any other contributions to proposed major programmes.</p> <p>Art. 12.2.h) Opportunities for scientists of all States, in particular scientists from developing States, to be involved in or associated with the project.</p> <p>Art. 12 2.i) The extent to which it is considered that States that may need and request technical assistance, in particular developing States, should be able to participate or to be represented in the project.</p> <p>Art. 12 2.j) A data management plan prepared according to open and responsible data governance, taking into account current international practice.</p> | <p>Yes, Indicators on Non-Monetary Benefit</p> | <p>The clearinghouse could use this information for indicators on collaborations. The treaty considers capacity-building by partnership opportunities to be a non-monetary benefit, so this could be measured even before in-situ collection. (Article 14)</p> <p>The data management plan may also provide information to measure “Open access to findable, accessible, interoperable and reusable (FAIR) scientific” as this is considered as a non-monetary benefit by the treaty (Art. 14)</p> |

Table 9, continuation from the previous page

| Activity subject to Notification | Information shared through Notification | Is it possible to use for Indicators on Access and/or Benefit? | Comments for implementation |
|--|--|--|--|
| <p>Post-Collection Notification no later than on year from obtaining the MGRs (Art 12.5)</p> <p>A biennial aggregate report from databases on access to MGRs and DSI of MGRs linked to their “BBNJ” standardized batch identifier, for the access and benefit-sharing committee (Art 12.7)</p> | <p>Art. 12.5. a) The repository or database where digital sequence information on marine genetic resources is or will be deposited.</p> <p>Art. 12.5.b) Where all MGRs collected in situ are or will be deposited or held.</p> <p>Art. 12.5.d) Any necessary updates to the data management plan provided under paragraph (2) (j) above.</p> <p>Art.12.8. c) Where the original sample that is the subject of utilization is held;</p> <p>Art. 12.8.d) The modalities envisaged for access to MGRs and digital sequence information on marine genetic resources being utilized, and a data management plan for the same;</p> | <p>Yes, on Non-monetary Benefits</p> | <p>The Clearing-House can use info to create a list of what repositories and databases hold the MGRs and DSI for MGRs and the type of access these provide.</p> <p>The extent to which existing databases can comply with the required report is not certain.</p> <p>To tag incoming data sets as “MGR and DSI of MGR from areas beyond national jurisdiction” may require informatic modifications to existing infrastructure</p> |

Table 9, continuation from the previous page

| Activity subject to Notification | Information shared through Notification | Is it possible to use for Indicators on Access and/or Benefit? | Comments for implementation |
|--|---|--|---|
| Notification on utilization of MGR from BBNJ (Art 12.8) | <p>Art. 12.8.a) Where the results of the utilization, such as publications, patents granted, if available and to the extent possible, and products developed, can be found;</p> <p>Art. 12.8.b) Where available, details of the post-collection notification to the Clearing-House Mechanism related to the MGRs that were the subject of utilization;</p> <p>Art. 12.8.c) Where the original sample that is the subject of utilization is held;</p> <p>Art. 12.8.d) The modalities envisaged for access to MGRs and digital sequence information on marine genetic resources being utilized, and a data management plan for the same;</p> <p>Art.12.8.e) Once marketed, information, if available, on sales of relevant products and any further development</p> | Yes, on Non-monetary Benefits | The Clearing-House can use this for indicators of utilization and benefits. However, the ability of collecting this information depends on the creation of a benefit at a certain point of time and the user that would be responsible to submit the information. |

6.4 Key findings

- Much remains to be determined and decided in terms of both implementation and thus possible indicators for the CBD DSI multilateral mechanism and the BBNJ Agreement by their respective governing bodies. **Parties to the CBD (for DSI) and to the BBNJ Agreement will be well advised to anticipate the need to monitor benefit-sharing and include indicators** during the development of the mechanisms under their respective governing bodies and proactively integrate them into negotiated texts.
- As DSI is an integral element of the KMGBF and the BBNJ Agreement will be under the broader umbrella of the KMGBF, both will need to contribute to Goal C and Target 13. Thus, an integrative and synergistic look at indicators, in a mutually supportive manner and with due respect to their distinctive mandates, will enable these new benefit-sharing instruments to seamlessly join the existing ABS instruments in ensuring that benefits are shared in a fair and equitable manner and increase by 2030 onwards to 2050.

6.5 Indicator recommendations to the KMGBF for global reporting from the BBNJ Agreement and CBD DSI multilateral mechanism

In order for all internationally agreed ABS instruments to be accounted for in the KMGBF, if that is decided by their respective governing bodies, information from the new CBD DSI multilateral mechanism and the BBNJ Agreement will need to be aggregated together with the already-implemented ABS mechanisms including the CBD and its NP and the ITP-GRFA. The remit of this study is not to pre-judge the outcomes of the CBD's development of the DSI multilateral mechanism nor to instruct the BBNJ Agreement future Conference of the Parties on how or if to develop indicators. However, for the benefit of the broader KMGBF, it would be helpful if both of those instruments could consider the following two headline indicators (one for monetary and one for non-monetary, including the 6 types of non-monetary benefits to be reported) to ensure consistency in reporting and aggregation.

Monetary benefits

For monetary benefits, both DSI and BBNJ will have a benefit-sharing fund of some sort. Thus, monetary benefit-sharing monitoring should be directly measurable.

- Proposed indicator: Monetary benefits received in accordance with the applicable internationally agreed ABS instruments (CBD DSI multilateral mechanism and the BBNJ Agreement)

- Custodian: Respective secretariats
- Methodology: To be determined by the respective governing bodies
- Possible disaggregation: consider disaggregation options both in terms of donors and beneficiaries as well as use

Non-monetary benefits

- Proposed indicator: Non-monetary benefits arising from applicable internationally agreed ABS instruments

Regarding non-monetary benefits, possible types of non-monetary benefits to be reported were included for the five categories analyzed in Table 6.

For each of the five non-monetary benefit-sharing categories, ideally both the BBNJ Agreement and the CBD DSI multilateral mechanism would put forth a set of indicators that could be aggregated together with the non-monetary benefits from the other instruments. As appropriate, they could use similar indicators and types of non-monetary benefits, as proposed in chapter 3 and chapter 4, to ensure maximal data integration.

- 1. Sharing of information, research results**
- 2. Scientific collaboration and/or joint publications**
- 3. Capacity-building, capacity development and/or trainings**
- 4. Access to and transfer of technology**
- 5. Sustainable development benefits**

For each of the types of non-monetary benefits to be reported, Parties should consider who the custodian, methodology and possible disaggregation factors should be as follows:

- Custodian: Who would report the type of non-monetary benefit data?
- Methodology: How would reporting be done?
- Possible disaggregation: consider possible geographic, beneficiary (e.g. IPLC), or thematic (e.g. conservation or sustainable use) disaggregation as appropriate.



7. Comprehensive ABS headline indicators for the KMGBF

Amber H. Scholz & Julia Duerschlag

7.1 Pulling the proposed ABS indicators together across the KMGBF

Goal C and Target 13 invite the ABS community to develop new methodology that accounts for and measures benefits shared. ABS systems to-date have largely focused on the creation of legislative, administrative, policy and compliance measures, thus the majority of data available on ABS relates to implementation and cannot inform whether benefits have been shared or access has been granted. The goal of the KMGBF is to measure what the global community has committed to and see what is working and what is not, in order to identify the changes needed for increasing benefits shared.

The primary focus of this study was to support Parties in developing the preliminary headline indicators formulated under Goal C and Target 13 (identical for both; C1: “monetary benefits received” and C2: “non-monetary benefits”) [7]. Based on the analysis presented throughout the previous chapters, we propose two new headline indicators for ABS as well as six types of non-monetary benefits to be reported (Table 10).

The new headline indicator for monetary benefit-sharing (“Monetary benefits received in accordance with applicable internationally agreed ABS instruments”) could enable both bilateral and multilateral systems for ABS to collectively report on monetary benefits across all international instruments into a single overarching indicator. This information would be collected at national level for the benefits shared bilaterally, and by the relevant ABS international instruments secretariats for those benefits shared multilaterally. Chapter 2 explains the existing challenges at national level to collect information on monetary

benefits shared, and chapter 3 provides some recommendations on actions that countries can take to address those challenges. The recommendations provided would not only help reporting on benefits shared but could strengthen national ABS systems. A better understanding of benefits received could enable countries to measure the effectiveness of their ABS system and mobilize political will and resources for implementing Target 13 and achieve Goal C of the KMGBF.

We propose that the new headline indicator for non-monetary benefits (“Non-monetary benefits arising from applicable internationally agreed ABS instruments”) be defined as the average rate of change in the types of non-monetary benefits shared. In order to facilitate the measurements, non-monetary benefits were grouped into five categories, and six types of non-monetary benefits, three of which can be collected at the national level and the other three collected globally based on the methods presented in chapter 4 (Table 10).

The methodology described in chapter 4 has been tested and could be further developed and maintained over time by the Leibniz Institute DSMZ to support non-monetary benefit-sharing measurements, subject to the availability of funds. The information would be collected at the global level, and offered to countries in a disaggregated manner for their national reports. Making this information available to countries would help reinforce the national systems for monitoring the utilization of genetic resources, as well as help to make the contribution of ABS towards conservation, sustainable use and the advancement of science and research more visible. This methodology could theoretically also be extended to facilitate global reporting on non-monetary benefit-sharing from the CBD DSI multilateral mechanism, the BBNJ Agreement, and the ITPGRFA at the request of those respective secretariats or governing bodies. Such a consolidation would likely ensure an efficient and cost-effective global ABS indicator.

For the three instruments that have multilateral approaches to benefit sharing (ITPGRFA, CBD DSI multilateral mechanism, BBNJ Agreement), we recommend that these instruments consider the five proposed categories of non-monetary benefits described in chapter 5 and chapter 6 which would enable them to report in a harmonized manner into the KMGBF. The study does not prejudge that other international ABS related instruments may also provide in the future information on benefit-sharing, but it did not cover the analysis of other instruments that are currently under negotiation (namely the international instrument on pandemic prevention, preparedness and response at the WHO and the international legal instrument relating to intellectual property, genetic resources and traditional knowledge associated with genetic resources at the WIPO) based on the lack of a final adopted text that could clarify the scope and possible ABS implications of those instruments.

Table 10: *The new proposed ABS headline indicators for the KMGBF. Underlined text is the new proposal, strikethrough text indicates original placeholder language for the headline indicators that would be replaced by the new headline indicators. Component and complementary indicators are shown as adopted in decision 15/5. For goals or targets marked with ^b: a binary indicator was proposed for inclusion for this goal or target and will be further considered by the Ad Hoc Technical Expert Group. Indicators marked with an asterisk (*): an agreed up-to-date methodology does not exist for this indicator. The Ad Hoc Technical Expert Group will work with partners to guide the development of these indicators.*

| Goal/Target | Headline indicator | Possible disaggregations | Component indicator | Complementary indicator |
|---------------------|---|--|---------------------|--|
| Goal C ^b | <p>C.1 Indicator on monetary benefits received*</p> <p>C.1 <u>Monetary benefits received in accordance with applicable internationally agreed ABS instruments</u></p> <p>C.2 Indicator on non-monetary benefits*</p> <p>C.2 <u>Non-monetary benefits arising from applicable internationally agreed ABS instruments</u></p> | <p>For C.1:</p> <p>By monetary benefits received by indigenous peoples and local communities</p> <p>For C.2:</p> <p>By type of non-monetary benefit**</p> <p>By non-monetary benefits received by indigenous peoples and local communities</p> | NA | <p>Number of users that have provided information relevant to the utilization of genetic resources to designated checkpoints</p> <p>Total number of internationally recognized certificate of compliance (IRCC) published in the ABS Clearing-House</p> <p>Number of checkpoint communiqués published in the ABS Clearing-House</p> <p>Number of internationally recognized certificates of compliance for non-commercial purposes</p> <p>Integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental Economic Accounting</p> |

Table 10, continuation from the previous page

| Goal/Target | Headline indicator | Possible disaggregations | Component indicator | Complementary indicator |
|------------------------------|---|---|--|---|
| Target 13^b | <p>C.1 Indicator on monetary benefits received*</p> <p>C.1 <u>Monetary benefits received in accordance with applicable internationally agreed ABS instruments</u></p> <p>C.2 Indicator on non-monetary benefits*</p> <p>C.2 <u>Non-monetary benefits arising from applicable internationally agreed ABS instruments</u></p> | <p>For C.1: By monetary benefits received by indigenous peoples and local communities</p> <p>For C.2: By type of non-monetary benefit** By non-monetary benefits received by indigenous peoples and local communities</p> | <p>Number of permits or their equivalents for genetic resources (including those related to traditional knowledge) by type of permit</p> | <p>Total number of transfers of crop material from the Multilateral System of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) received in a country</p> <p>Total number of permits, or their equivalent, granted for access to genetic resources</p> <p>Total number of IRCC published in the ABS Clearing-House</p> <p>Number of countries that require prior informed consent that have published legislative, administrative or policy measures on access and benefit-sharing in the ABS Clearing-House</p> <p>Number of countries that require prior informed consent that have published information on access and benefit-sharing procedures in the ABS Clearing-House</p> <p>Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits</p> <p>Estimated percentage of monetary and non-monetary benefits directed towards conservation and sustainable use of biodiversity</p> |

**This information will be collected through the national reporting under the Convention where Parties report which types of non-monetary benefits they have received. The reporting should at a minimum include:

1. Number of research and development results arising from ABS instruments (globally collected).
2. Number of joint scientific publications arising from ABS instruments with authors from the provider country, where appropriate (globally collected)
3. Number of scientific publications relevant to conservation, sustainable use, food security, and public health arising from ABS instruments (globally collected).
4. Number of technology transfer events arising from ABS instruments (nationally collected).
5. Number of projects contributing to sustainable development arising from ABS instruments (nationally collected).
6. Indicator related to capacity-building and development as part of the non-monetary benefits arising from ABS instruments (TBD, see target 20 of the KMGBF).

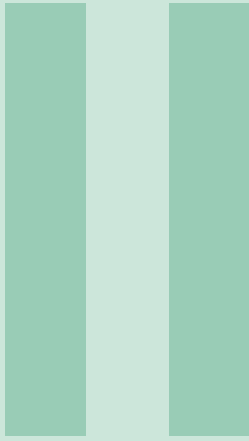
7.2 Outlook

This study is the beginning of a long-term process to develop new ABS headline indicators for the KMGBF as well as a methodology for monitoring benefit-sharing that will address Goal C and Target 13. This will necessarily be a Party-led process that will require significant changes in ABS reporting and data collection and likely related capacity building. A few early steps towards implementation seem clear. First, Parties will need to consider and decide on the proposed indicators of the monitoring framework of the KMGBF at COP16. Subsequently, NBSAPs will need to be considered and updated with relevant ABS monetary and non-monetary reporting. In parallel, other internationally agreed ABS instruments (*inter alia* ITPGRFA, the CBD DSI multilateral mechanism and the BBNJ Agreement) will need to decide if and how to contribute to the implementation of the KMGBF and its monitoring framework adopted at the CBD. At the national level, countries will need to consider new structures for receiving data on the three types of nationally-reported non-monetary benefits as well as aggregate monetary benefits. To ensure the generation of data related to the three types of globally-collected non-monetary benefits, Parties might consider explicitly requiring users to include IRCCs (or, in the interim, national ABS permit codes) in scientific publications and ensuring their national permits are published as IRCCs in the ABS Clearing House. In parallel, a global reporting mechanism for non-monetary benefit-sharing could enable an efficient and cost-effective tool for capturing ABS outcomes.

In the mid-term, new methods for measuring commercial use of GR (or DSI) might

be tested and developed such as using patent application text to assess and monitor “joint ventures” or “joint ownership of relevant intellectual property rights” (per NP Annex). Additionally, users and providers might consider whether and if so, how, to measure facilitated access which is part of Target 13.

ABS instruments offer the opportunity to foster long-term relationships and collaborations that can be highly impactful and meaningful to all sides. During the expert interviews, it was frequently noted that ABS has much unrealized potential. Through a shared venture between national and global reporting on ABS indicators, we can begin to move towards the long-term goal of measuring the broader societal value and impact of ABS at the national, regional, and international level. Once this shared goal is realized, the ambitions of Goal C and the broader KMGBF will also be on course.



Backmatter & Appendices

| | |
|---|-----------|
| Bibliography | 93 |
| Acronyms | 98 |
| Annex 1 - Survey methodology notes | A |
| Annex 2 - Survey | D |
| Annex 3 - Interview | M |



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Acronyms and abbreviations

| | |
|--|-----|
| ABS Access and Benefit-Sharing | |
| ABS-CH ABS Clearing-House | 10 |
| ABS CDI ABS Capacity Development Initiative | iii |
| AHTEG Ad Hoc Technical Expert Group | iv |
| aTK Traditional Knowledge associated with Genetic Resources | |
| BBNJ Agreement Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine Biological diversity of areas Beyond National Jurisdiction | 2 |
| BfN German Federal Agency for Nature Conservation | iv |
| BMUV German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection | iv |
| CBD Convention on Biological Diversity | iv |
| CHM Clearing-House Mechanism (of the BBNJ Agreement) | 76 |
| CIRAD French Agricultural Research Centre for International Development | iii |
| CONAGEBIO National Commission for the Management of Biodiversity | 3 |
| COP Conference Of the Parties | 9 |

| | |
|--|-----|
| CNA Competent National Authorities | 9 |
| CPC CheckPoint Communiqué | 17 |
| DSI Digital Sequence Information on genetic resources | 1 |
| DSMZ Leibniz Institute German Collection of Microorganisms and Cell Cultures GmbH | |
| ET-NMBS Examining Trends in Non-Monetary Benefit Sharing | iv |
| FAO Food and Agriculture Organization of the United Nations | iv |
| FAR-DSI Feasibility Assessment of Regulation for Digital Sequence Information . . . | iv |
| FIOCRUZ Oswaldo Cruz Foundation | iv |
| GB Governing Body | 10 |
| GBIF Global Biodiversity Information Facility | iv |
| GFBio German Federation for Biological Data | iii |
| GR Genetic Resource(s) | 1 |
| GRI Global Reporting standard | 59 |
| ICC International Chamber of Commerce | iv |
| IIFB International Indigenous Forum on Biodiversity | iv |
| IPLC Indigenous Peoples and Local Communities | 9 |
| IRCC Internationally Recognized Certificate of Compliance | 10 |
| ITPGRFA International Treaty on Plant Genetic Resources for Food and Agriculture . | 1 |
| IZW Leibniz Institute for Zoo and Wildlife Research | iii |
| KMGBF Kunming-Montreal Global Biodiversity Framework | 1 |
| MAT Mutually Agreed Terms | 9 |
| MGR Marine Genetic Resource(s) | 75 |
| ML Multilateral | 10 |
| MLS MultiLateral System of access and benefit-sharing under the International Treaty on | |

| | |
|---|----|
| Plant Genetic Resources for Food and Agriculture | 10 |
| NDA Non-Disclosure Agreements | 42 |
| NFP National Focal Point | 9 |
| NMBS Non-Monetary Benefit-Sharing | 48 |
| NP Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization to the Convention on Biological Diversity | 1 |
| PIC Prior Informed Consent | 9 |
| PMC PubMed Central | 50 |
| PPI People and Plant International | iv |
| SCBD Secretariat of the Convention on Biological Diversity | v |
| SPI Science Policy & Internationalisation | 48 |
| SMTA Standard Material Transfer Agreement | 10 |
| UEBT Union for Ethical Biobanking | iv |
| WHO World Health Organization | 15 |
| WIPO World Intellectual Property Organization | 15 |



Annex 1 - Survey methodology notes

Methodology notes – development of the survey on ABS indicators for the Kunming-Montreal Global Biodiversity Framework and analysis of its results

As part of the work carried out for this study, a survey was designed to collect information from Parties to the Convention on Biological Diversity (CBD) on data available on the implementation of national access and benefit-sharing frameworks, in particular data relating to monetary and non-monetary benefits received from granting access to genetic resources and/or traditional knowledge associated with genetic resources. The survey was developed to help fill a gap in knowledge on the current state of national data collection for ABS, in view of informing the development of the new ABS indicators adopted under the KMGBF. It was distributed by the CBD Secretariat to national focal points to the Convention and the Nagoya Protocol, and was available online from 29 September 2023 to 27 October 2023 [16]. Respondents were invited to complete the survey in either English, French or Spanish.

Annex 1 - Survey design

The authors, in collaboration with the CBD Secretariat, designed the survey questionnaire in 4 sections to collect the following: 1) general information on respondents and national ABS context (questions 1-8); 2) national information available on monetary benefits (questions 9-12); 3) national information available on non-monetary benefits (questions 13-16); and 4) complementary information (questions 17-19).

The survey included both multiple-choice and free text questions. Multiple-choice questions were mandatory, except where previous responses allowed respondents to skip questions not relevant to them (e.g. questions on disaggregation, when no data is available). Free text questions were not mandatory but allowed respondents to provide additional

information or nuance their responses to the standard multiple-choice questions, if desired. In section 1, respondents were asked general questions on their ABS country context as a way of identifying participants most likely to have experience in handling data on monetary and non-monetary benefits, as well as participants who could skip to the last section, for instance if their country did not regulate access to genetic resources and associated traditional knowledge. In section 4, respondents were able to provide their contact information and consent to being contacted by the researchers for additional follow-up.

The survey was designed and administered using MS Office Forms 365 (online version). When clicking on the survey link, respondents were taken either to the original English language version of the survey or to a courtesy translation version in French or Spanish, depending on the language settings of their web browser. Respondents with web browser settings in other languages (e.g. Arabic) were to be directed to the English version.

While the survey was targeted to national focal points, it allowed any individual with access to the link to complete the questionnaire. Therefore, national focal points were able to forward the survey link to interested national stakeholders or to other colleagues that would have useful feedback to contribute. For this reason, the survey also accepted multiple responses per country.

The authors estimated that the survey would take national focal points approximately 15 minutes to complete. For some respondents, more time may have been needed due to factors such as language barrier, technical/connectivity issues, or needing to consult other colleagues or data sources. To save respondents' time, the survey was designed to skip the parts of the survey that would not be relevant to the country based on previous responses, for instance when a country indicated it did not regulate access to genetic resources and/or associated traditional knowledge.

National focal points are responsible for liaising with the CBD Secretariat and notifying of any changes relating to national focal point designations, including contact information. Some national focal points for which contact information was incorrect or outdated, or with technical issues with their email, may not have been reached by the notification and therefore not invited to complete the survey.


Annex 1 - Analysis of data collected

When analyzing survey results, the authors note that some data corrections were carried out to enhance data quality and produce sound analyses. For instance, duplicate responses submitted by the same respondent were removed from the dataset used for analysis. Further, some countries who participated in the in-depth interviews described further in this chapter provided oral or written corrections to their survey responses which were reflected in the

dataset.

Further, the authors note that a few respondents provided incoherent or inaccurate responses. For instance, when multiple responses were received from the same country, they noted inconsistencies in responses to questions on the ABS country context. When compiling responses to analyze results by country, the authors therefore gave precedence to the response provided by the ABS national focal point and/or verified the information published on the Access and Benefit-sharing Clearing-House (<https://absch.cbd.int/>), as well as consistency with other responses provided in the survey. Minor data corrections were made on this basis.

Further, the authors note that due to a technical error with MS Forms, 3 responses received in the first few days of the survey being online were incomplete due to some questions not appearing on screen in the section on monetary benefits. The respondents (from three different countries) were contacted by email and encouraged to provide the missing information. Unfortunately, this information was not obtained and therefore is absent in the analysis above on possible disaggregation and national indicators on monetary benefits received.



Annex 2 - Survey

Survey on ABS indicators for the Kunming-Montreal Global Biodiversity Framework

In December 2022, the Conference of the Parties to the Convention on Biological Diversity adopted the Kunming-Montreal Global Biodiversity Framework, which includes **Goal C and Target 13** dedicated to access and benefit-sharing (ABS). The **monitoring framework** of the Kunming-Montreal Global Biodiversity Framework comprises a set of headline indicators including the following related to Goal C and Target 13 (ABS indicators):

- C.1 Indicator on monetary benefits
- C.2 Indicator on non-monetary benefits

In this context, Parties to the Convention are invited to complete this survey on ABS indicators for the Global Biodiversity Framework, to gather information on current practices in data collection on monetary and non-monetary benefits arising from the utilization of genetic resources and/or traditional knowledge associated with genetic resources.

The survey is being conducted by the **Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures** on behalf of the Secretariat of the Convention on Biological Diversity and its results will be included in a background study commissioned on indicators for access and benefit-sharing. The survey and the study will assist the **Ad Hoc Technical Expert Group (AHTEG) on Indicators for the Kunming-Montreal Global Biodiversity Framework** in fulfilling its mandate.

The survey should take approximately **15 minutes** to complete and will be open until **27 October 2023**. We thank you in advance for your time and support to advance the development of indicators to implement and monitor the Kunming-Montreal Global Biodiversity Framework.

Section 1 – General Information

[“*” indicates a mandatory question, “_____” indicates fill-in fields]

1. Name* _____
2. Country* _____
3. Organization/Department/Ministry/Agency _____
4. Role in national ABS system (more than one option may apply)*
 - ABS national focal point
 - CBD national focal point
 - ABS competent national authority
 - Other (please specify): _____
5. Does your country regulate access to genetic resources (GR) and/or traditional knowledge associated with genetic resources (ATK) ?*
 - Yes, my country regulates access to GR and ATK [continue to next question]
 - Yes, my country regulates access only to GR [continue to next question]
 - Yes, my country regulates access only to ATK [continue to question 7]
 - No [skip to Section 4 – Additional information]
 - I don't know [continue to next question]
6. Under your country's national legislation, which entity/entities are recognized as providers of genetic resources? More than one option may apply.*
 - National government
 - Regional government
 - Local government
 - Indigenous peoples and local communities
 - Other: _____
 - I don't know
7. Under your country's national legislation, which entity/entities are recognized as providers of traditional knowledge associated with genetic resources? More than one option may apply.*
 - National government
 - Regional government
 - Local government
 - Indigenous peoples and local communities
 - Other: _____
 - I don't know

8. In the last ten years, have ABS agreements been concluded with users for access to genetic resources and/or traditional knowledge associated with genetic resources in your country's jurisdiction?*
- Yes [continue to next question]
 - No [continue to next question]
 - I don't know [continue to next question]

Section 2 – Monetary benefits received from users of genetic resources and/or associated traditional knowledge

This section addresses data/information collection practices related to **monetary benefits** received from the implementation of ABS agreements (related to headline indicator C.1).

9. Based on your country's national priorities (or those of the recognized provider) when negotiating mutually agreed terms, what are the most important monetary benefits? (list from [Annex to the Nagoya Protocol](#)).
- access fees or sample collection fees
 - up-front payments
 - milestone payments
 - payment of royalties
 - license fees
 - special fees or contributions to trust funds supporting conservation and sustainable use of biodiversity
 - salaries and preferential terms where mutually agreed
 - research funding
 - joint ventures
 - joint ownership of relevant intellectual property rights
 - Not applicable
 - I prefer not to say
 - I don't know
 - Other: _____
- 9.1. Please explain your response to the previous question: _____

10. Is information available on the overall (aggregate) amount of monetary benefits received in your country from ABS agreements?*

- Yes, aggregate information is available [*continue to 10.2*]
 - Yes, partial information is available [*continue to 10.2*]
 - No, no information is available [*continue to 10.1, then to 11*]
 - I don't know [*continue to 11*]
 - Not applicable [*continue to 11*]
- 10.1. [*NO IS SELECTED FOR 10*] Please indicate why such information is not available or what barriers exist to the collection of aggregate information on monetary benefits at national level: _____
- 10.2. [*YES OR PARTIAL YES IS SELECTED FOR 10*] How is the information on benefits shared compiled, stored and analyzed? Which sentence better describes the situation in your country? Check all the options that apply:
- We receive printed documents like bills, reports, and other proofs of benefits shared and then organize and store them.
 - We receive digital documents like bills, reports, and other proofs of benefits shared (e.g. by email) and then organize and save them in a computer or server.
 - Besides receiving documents as proof of benefit shared, we compile and systematize manually the information in data tables, e.g. excel files. (e.g. to know how many reports have been received).
 - We compile the benefits shared through an online platform and the information is stored in databases (e.g. MS SQL, MS Access, others) but is not analyzed automatically.
 - We compile information on benefits shared through an online platform and we have a database and an user interface (back-end database and/or business intelligence system) to analyses information, generate statistics, aggregate and disaggregate information, etc.
 - Other, specify: _____
- 10.3. Is information on monetary benefits received available by calendar year?*
- Yes
 - No
 - I don't know
- 10.3.1. [*IF YES IS SELECTED FOR 10.3*] Please share available data on the amount of monetary benefits received in your country or other relevant information: _____

- 10.3.2. [IF NO IS SELECTED FOR 10.3] Please indicate why this is the case or what barriers exist to the collection of information disaggregated by calendar year at national level: _____
- 10.4. Do you have disaggregated information on monetary benefits received by any of the following beneficiary types? Select the options that apply:*
- National/regional/local government
 - Academic institution
 - Indigenous peoples and local communities
 - Women
 - Other: _____
 - No, no disaggregation is available on beneficiary types
 - I don't know
- 10.4.1. [IF NO IS SELECTED FOR 10.4] Please indicate why such information is not available or what barriers exist to the collection or compilation of information disaggregated by beneficiary type at national level: _____
- 10.5. Other available disaggregation for monetary benefits received (if any): _____
- 10.6. Do any indicators exist at national level to monitor monetary benefits received from ABS agreements?*
- Yes
 - No
 - I don't know
- 10.6.1. [IF YES IS SELECTED FOR 10.6] If indicators exist, please provide information or links to information on national indicators: _____
11. In your country, has a fund or other financial mechanism been established to receive monetary benefits arising from ABS agreements?*
- Yes
 - No
 - I don't know
12. Please use this space to provide additional information on how monetary benefits are received and managed in your country: _____

Section 3 – Non-monetary benefits received from users of genetic resources and/or traditional knowledge associated with genetic resources

This section addresses data collection practices related to **non-monetary benefits** received from the implementation of an ABS agreement (related to headline indicator C.2).

13. Based on your country's national priorities (or those of the recognized provider) when negotiating mutually agreed terms, what are the most important non-monetary benefits? Select up to five from the list below (from Annex to the Nagoya Protocol):*

- Sharing of research and development results
- Collaboration, cooperation and contribution in scientific research and development programmes
- Participation in product development
- Collaboration, cooperation and contribution in education and training
- Admittance to ex situ facilities of genetic resources and to databases
- Transfer of knowledge and technology under fair and most favourable terms
- Strengthening capacities for technology transfer
- Institutional capacity-building
- Human and material resources to strengthen the capacities for the administration and enforcement of access regulations
- Training related to genetic resources with the full participation of countries providing genetic resources, and where possible, in such countries
- Access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies
- Contributions to the local economy
- Research directed towards priority needs, such as health and food security, taking into account domestic uses of genetic resources
- Institutional and professional relationships and subsequent collaborative activities
- Food and livelihood security benefits
- Social recognition
- Joint ownership of relevant intellectual property rights
- Not applicable
- I prefer not to say
- I don't know
- Other: _____

13.1. Please explain your response: _____

14. Is information available on the following non-monetary benefits received in your country? Select all the options that apply:*

- Sharing of research and development results
- Collaboration, cooperation and contribution in scientific research and development programmes
- Participation in product development
- Collaboration, cooperation and contribution in education and training
- Admittance to ex situ facilities of genetic resources and to databases
- Transfer of knowledge and technology under fair and most favourable terms
- Strengthening capacities for technology transfer
- Institutional capacity-building
- Human and material resources to strengthen the capacities for the administration and enforcement of access regulations
- Training related to genetic resources with the full participation of countries providing genetic resources, and where possible, in such countries
- Access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies
- Contributions to the local economy
- Research directed towards priority needs, such as health and food security, taking into account domestic uses of genetic resources
- Institutional and professional relationships and subsequent collaborative activities
- Food and livelihood security benefits
- Social recognition
- Joint ownership of relevant intellectual property rights
- No information is available on non-monetary benefits
- Not applicable
- I prefer not to say
- I don't know
- Other: _____

14.1. How is the information on benefits shared compiled, stored and analyzed? Which sentence better describes the situation in your country? Check all the options that apply:

- We receive printed documents like bills, reports, and other proofs of benefits shared and then organize and store them.
- We receive digital documents like bills, reports, and other proofs of benefits shared (e.g. by email) and then organize and save them in a computer or server.
- Besides receiving documents as proof of benefit shared, we compile and systematize manually the information in data tables, e.g. excel files. (e.g. to know how many reports have been received).
- We compile the benefits shared through an online platform and the information is stored in databases (e.g. MS SQL, MS Access, others) but is not analyzed automatically.
- We compile information on benefits shared through an online platform and we have a database and an user interface (back-end database and/or business intelligence system) to analyses information, generate statistics, aggregate and disaggregate information, etc.
- Other: _____

14.2. Please use this space to share available data on non-monetary benefits received in your country, and/or specify any available disaggregation as appropriate:

15. Do any indicators exist at national level to monitor non-monetary benefits received from ABS agreements?*

- Yes [*continue to 15.1, then to section 4*]
- No [*continue to 16*]
- I don't know [*continue to 16*]

15.1. [*IF YES IS SELECTED FOR 15*] If indicators exist, please provide information or links to information on national indicators: _____

16. If little or no information is available on non-monetary benefits received in your country, please indicate why this is the case or what barriers exist to the collection of this information at national level: _____

Section 4 – Additional information

17. Does your country collect or encounter information on monetary or non-monetary benefits shared with other countries through user compliance checks or other compliance measures?*
- Yes
- No
- I don't know
- 17.1. [*IF YES IS SELECTED FOR 17*] Please describe what information is collected or observed on monetary and non-monetary benefits and whether/how this information is compiled or used: _____
18. Should the study researchers have follow-up questions regarding your responses to this survey, do you consent to being contacted to provide additional information?
- Yes
- No
- 18.1. [*IF YES IS SELECTED FOR 18*] Please provide your preferred method of contact (phone number, e-mail, etc.): _____
19. Please use this space to share your advice or concerns, for example regarding capacity needs, for the development and use of ABS indicators for the Kunming-Montreal Global Biodiversity Framework: _____



Annex 3 - Interview

Notes on interviews

Interview team: Julia Duerschlag, Melania Muñoz García, Amber H. Scholz. Country interviews were conducted by the interview team as well as Suhel al-Janabi and Hartmut Meyer.

We conducted 16 interviews with country representatives and 16 ABS experts from various fields and sectors (see acknowledgment for countries and experts that participated). In a 45-minute interview, questions about ABS procedures, possible indicators as well as challenges and opportunities in the development of ABS indicators were asked and discussed. Questions were sent prior the interview to the participants.

Interviews were recorded for internal analysis. The results and key findings were summarized and incorporated into chapter 2 and chapter 3.

Interview questions on Access and Benefit Sharing (ABS) indicators

Questions for countries that regulate access to GR and/or aTK

1. How does any benefit-sharing monitoring work in your country? Which institutions are involved in collecting the information?
 - (a) Who receives the information about the benefits shared?
 - (b) Who must report on benefits shared? Users? Providers? Both?
 - (c) Is there a reporting requirement for users about shared benefits anchored in your legal framework or perhaps as part of your ABS permit/contract/standard MAT?
 - (d) To whom is benefit-sharing reported? Follow up: if users are obliged to report to different national authorities, is it possible to compile the complete information?
 - (e) Is there a difference in benefit-sharing on utilization of Genetic Resources and

associated Traditional Knowledge?

- (f) Are their reporting roles of third parties (e.g. domestic research partners (in-country)) involved?
2. If a new indicator required a report on “benefits shared”, how would your country handle this? What challenges would you face in terms of data management and reporting?
3. What kind of information/data about monetary benefits received (if any) by your country is available at the aggregate level?
4. What would be needed for your country to be better able to quantify, store and aggregate monetary benefits received?
5. What information do you have on non-monetary benefits in your country?
6. Given the limitations of reporting on the benefits that have been shared at the national level, what other data sources might be considered (role of users, industry, academia)?

Questions for countries that do not regulate the access to GR and/or aTK and ABS experts

1. What challenges do you see for developing ABS indicators?
2. What opportunities do you see for developing ABS indicators?
3. What types of benefits will be easier to measure? Monetary or non-monetary? Why?
4. If you could wave a magic wand...
 - (a) How would you begin to measure monetary benefits received?
 - (b) How would you begin to measure non-monetary benefits?
5. One key challenge for ABS indicators is that ABS agreements are often private contracts and thus ABS outcomes are often “invisible” to the international community. Do you have any “out of the box” ideas on how to improve the visibility (or accounting) of ABS at a national and global level?
6. Given the limitation of benefit sharing on collecting data on the national and global level, do you have any ideas or proposals on other opportunities on benefit sharing data? What other actors could potentially play a role in generating benefit sharing data?